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An index to the seventy-fourth volume of THE RAILWAY GAZETTE covering the issues from January 3 to June 27, 1941, has been prepared, and is now available free of charge on application to the Publisher

DISPATCH OF "THE RAILWAY GAZETTE"
OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 of 1940, and No. 359 of 1941

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:—

Mondays to Fridays 9.30 a.m. till 5.0 p.m.

The office is closed on Saturdays.

Increased Empire Industrial Production

M R. GUY LOCOCK, Director of the Federation of British Industries, has just returned from his visit to India as a member of the Ministry of Supply mission to that country, and as delegate to the Eastern Group Conference, New Delhi. The recommendations of the commission are naturally confidential, but Mr. Locock has no doubt that their effect on war production in the Eastern Group is likely to be considerable. As Board of Trade representative on the mission, he was entrusted with the task of appraising future effects on British industry of the war production expansion now being undertaken, always keeping in mind the necessity for giving priority to vital war needs. There can be no doubt that the present war, like its 1914-19 predecessor, will accelerate industrialisation in India and other eastern countries. At the same time Mr. Locock holds the view that no steps have been taken to expand production as a result of the mission's visit which are not essential for war purposes, and that on the whole post-war interests of British industry are not likely to suffer so greatly as was at one time expected. Nevertheless, there can be no doubt that increased industrial production has to be anticipated in the post-war period in India, to a greater extent in Australia, and to a smaller extent in South Africa, and many peacetime problems will arise for the British exporter, once replenishment demands are met;

* * * *

Control of the Ports

One of the main results, as far as shipping is concerned, of the fusion between the Ministries of Shipping and Transport under the title of the Ministry of War Transport is the combining of the port work hitherto done by the Ministry of Transport with the corresponding activities of the Ministry of Shipping. The two divisions, as they are termed, have been made the basis of a new Port & Transit Control. One of the objects of the fusion of the Ministries was to avoid any overlapping of the work of the departments affecting ports. It is there naturally that the two authorities met and impinged on each other. Through the new Port & Transit Council the primary contacts of shipping with railways, road transport, and the inland waterways, it is officially explained, will be obtained. The head of the new Port & Transit Control is Mr. Basil Sanderson, who was head of the shipping division concerned with the ports, but was able to make only recommendations affecting matters that came directly within the control of the Ministry of Transport, which the ports themselves did. The fusing of the two divisions is in accordance with the views held by Lord Leathers, the Minister of War Transport, that the movement of goods from one part of the world to another should be regarded as one uninterrupted operation.

* * * *

Internal and External Transport Link

The introduction of the second of the "Merchant Navy" class of locomotives, the *Union Castle*, which was named by Mr. Robertson F. Gibb at Victoria station on Friday, gave Mr. R. Holland-Martin an opportunity of saying what this new development of the Southern Railway meant in these days of war stress. He was explaining, by way of introducing Mr. Gibb, that some people wondered why his company should spend time on research and the manufacture and introduction of a new type of locomotive in war; but he believed that it was just in such times that every ounce of productive effort should be put forward. After all, as he suggested, Hitler was not abating any of the energies of his productive machines, so why should we? Probably what the Chairman of the Southern Railway Company had at the back of his mind was, not the use to which these new engines could be put in hauling the ocean expresses which cater for the vast Southampton passenger traffic, but their great advantage today when they can be turned to profitable employment as mixed traffic engines for hauling express goods trains whether for imperative war requirements or urgent civilian needs. Thus, again, the policy of long term research for the commerce of peace has been turned to the

advantage of a national emergency. It was also a happy augury that—apart from the initial trial engine which, being the Southern Railway's own as it were, the *Channel Packet*, introduced the first of the commercial series—the *Union Castle* links up the railways with the merchant service just as Lord Leathers, who was represented on that occasion by Sir Cyril Hurcomb, has done in the newly co-ordinated Ministry of War Transport.

* * * *

Overseas Railway Traffics

From the returns now available the figures of gross earnings of the British-owned railways in Argentina for the financial year recently ended can be ascertained. It will be seen from the accompanying table that the only two companies to show increased traffic receipts for the year are the Buenos Ayres & Pacific and the Buenos Ayres Western, although there has been a steady improvement in the earnings of the four principal companies for some weeks past. The Pacific Company has progressively reduced its arrears of debenture interest, but the recently-proposed Buenos Ayres Western moratorium is disturbing. So far, the only company without a moratorium is the Great Southern. The Central Uruguay finishes its financial year with an increase of £98,811 in receipts.

	No. of week	Weekly traffics	Inc. or decrease	Aggregate traffic	Inc. or decrease
Buenos Ayres & Pacific*	52nd	1,585	+461	75,233	+4,010
Buenos Ayres Great Southern*	52nd	2,559	+775	115,881	+3,994
Buenos Ayres Western*	52nd	1,030	+253	41,538	+854
Central Argentine*	52nd	1,924	+504	85,990	+4,511
Canadian Pacific	25th	840,800	+154,800	18,786,200	+4,655,000
Bombay, Baroda & Central	12th	300,450	+31,575	2,532,000	+95,700
India ..					

* Traffic returns in thousands of pesos

Canadian Pacific gross earnings for the first five months of 1941 amounted to £16,269,000, an increase of £4,030,400.

* * * *

New York Central Railroad

This company experienced an encouraging improvement in business in the year 1940. Total operating revenues were the greatest realised since 1931, and the net financial results the best since 1930. Freight revenue, amounting to \$270,274,028, was \$30,143,363, or 12.55 per cent., in excess of that obtained in 1939, and the advance of 14.47 per cent. in the volume of revenue freight transported was secured with an increase of only 8.40 per cent. in freight train-mileage. In the passenger revenue of \$59,322,145 there was a decline of 3.4 per cent., although the number carried was 2.28 per cent. higher.

	1939	1940
	\$	\$
Railway operating revenues	341,086,708	370,545,875
Railway operating expenses	256,884,232	278,674,980
Net railway operating income	37,303,427	44,052,437
Income available for fixed charges	52,612,680	60,247,938
Fixed charges	48,103,444	48,982,854
Net income ..	4,509,236	11,265,084

Balance to credit of profit and loss at the end of 1940 amounted to \$178,079,443, against \$170,777,953 at the end of 1939. Miles operated decreased from 11,008 to 10,941, and the operating ratio improved from 75.31 per cent. to 75.21 per cent.

* * * *

The Railway Carriage Leader in Germany

The principle of leadership seems to apply to all strata of the Nazi régime, beginning with the *Führer* at the head of the whole system, and passing through the *Gauleiter* in charge of districts, down to the mere building leader in blocks of flats. A new variety of leader would now seem to have been introduced with the promulgation of seven rules for railway travellers that have been drawn up officially and given wide publicity in the German press. The purpose of the rules is stated to be that of making conditions less intolerable, to prevent passengers from annoying one another, and "to help in preserving good humour without which nowadays travel is insufferable." The rule in question—No. 4 of the seven—says that inside the railway compartment passengers must form themselves into a team headed by the person

who has been there longest. He is authorised to settle disputes about seating, to decide about the use of luggage racks, to order the passengers to sit as tightly wedged as possible so as to squeeze in one more than the seats normally hold, and to take the initiative frequently during the journey in suggesting (tactfully and politely but firmly) that sitters should change places with those who are standing. These rules are set out in full at page 43 of this issue. Another rule takes the matter further by inviting all travellers to cultivate the team spirit against inconsiderate fighting for seats and against elbow diggers. Then the mailed fist inside the velvet glove of the carriage leader becomes evident. If conciliatory words are without effect, the leader is enjoined to employ sharpness and finally to call the guard. Even those of us with the least sympathy for Nazi politics may realise that the railway carriage leader system has its advantages in achieving a decision without the interminable arguments that sometimes accompany divided desires about the position of the compartment window.

* * * *

Cost of Train Stops

It has been realised for some time that the expenditure of energy in stopping and restarting a high-speed or heavy train represents an appreciable financial cost, but accurate evaluation is made difficult by many variables, and items such as allowances for wear which it is scarcely possible to assess correctly. Recently the Chicago, Milwaukee, St. Paul & Pacific Railroad has issued to all its operating officers a chart showing the cost in dollars of a stop and restart for various train weights from speeds of 55 m.p.h. downwards. The cost of coal is taken at \$3 a ton and information given as to adjustments for different prices. An arbitrary allowance evolved by the railroad is included to cover brake shoe wear, water and other items. Based primarily on curves evolved by the Signal Section of the Association of American Railways, but modified to suit the particular conditions found on the Milwaukee, the chart is intended for general use to determine approximate savings which could be made by eliminating stops at stations or signals. As an example of the stopping cost, the chart shows that a 750-ton (short tons) train can be stopped from 50 m.p.h. at a cost of 75 cents and a 500-ton train from 55 m.p.h. for 60 cents.

* * * *

Rounding off Decimals

An article in a recent issue of *Power* calls attention to the degrees of error which may be introduced into calculations by rounding off decimals ending in 5 to the next higher figure. A new standard prepared by the American Standards Association (*Publication Z25.1-1940*) points out that the correct method is to round off to the nearest even figure, e.g. 3.25 to 3.2; 0.215 to 0.22; and so on. To illustrate the importance of this matter: The correct value of $2 \times (0.5 + 1.5 + 2.5 + 3.5)$ is 16; but by the incorrect method, approximating to the next higher figure, the result is $2 \times (1 + 2 + 3 + 4) = 20$. On the other hand, by rounding off to the nearest even figure, the result is $2 \times (0 + 2 + 2 + 4) = 16$. It is a coincidence that in this particular case the latter result is exact, but by taking other examples it will be found that the even-figure rule is always much more nearly accurate than the next-higher rule, which results in cumulative errors. Of course, in many cases the rounding off of decimals consists mainly in simplifying the constituents of a known (or readily-ascertainable) result, especially in conversions from metric measurements, and the one effecting the calculations should obviously avoid presenting constituents which fail to total accurately. The rounding-off rule facilitates this.

* * * *

The Engineer as Administrator

Whereas abroad it is usual for qualified engineers to hold most of the chief administrative posts on railways, in this country the tendency has been that engineers should control only those departments calling for specifically technical knowledge, e.g. mechanical, electrical, and civil engineering.

Although in recent times there have been such exceptions as Sir James Inglis, Sir John Aspinall, Sir Percy Tempest, Sir James Milne, Sir Ernest Lemon, and Mr. Gilbert Sclumper, the increasing prominence claimed by finance has brought many accountants to the fore as railway managers, and it is therefore quite a notable event that Mr. R. J. M. Inglis should have been selected to fill the appointment of Divisional General Manager of the L.N.E.R. in Scotland. Mr. Inglis's résumé as a civil engineer, latterly in control of the company's Southern Area, is high; he has been responsible for much important and intricate work, and during the air-raid period, has handled some exceptionally difficult problems with outstanding success. His administrative capacity has also proved a notable asset to the L.N.E.R., and will, of course, have even wider scope in his new responsibilities. Under war conditions, the realities of what can be done with physical assets on which there is an ever increasing call, imperatively demand close attention. In such conditions the relative importance of the engineer naturally grows.

* * * *

Another Large Blast

We described some three years ago a big blast of quarry stone made at Caldon Low and which brought down thousands of tons of stone in the one operation, including a block selected for the new Euston station. The same method is applied at the Southern Railway's ballast quarry at Meldon, and we read in the June issue of the *Journal of the Incorporated Clerks of Works Association* of another big blast which took place on February 1 last in the Beecroft quarry at Horton-in-Ribblesdale. The stone here is limestone and the property of the Settle Limes Limited. The estimated quantity of stone blasted was 125,000 tons, and required 22,000 lb. of explosive which, as at Caldon Low and Meldon, was placed in headings driven under the cliff. At Beecroft the heading was driven in 54 ft. from the face, and the north and south branches of the T were 75 ft. and 50 ft. respectively. There were five chambers in all, three on the north side and two on the south side, all at 25 ft. spacing. The effective height of the face over the heading was 145 ft. The cross sectional dimensions of the headings were 4 ft. 6 in. x 2 ft. 6 in., and the explosive was run in on specially constructed wooden bogies with wooden axles, wheels, and tracks. The blast was fired in the presence of a large crowd of spectators, and the symmetry of the heap, together with the complete absence of flying stone, indicated that the charges in the chambers had been accurately balanced.

* * * *

War and the Railfan

Defence preparations in the United States have made it necessary to restrict the activities of the "railfans" in that country. During the past decade, the managements of American railroads, waging a hard fight against air and road competition, have come to realise the substantial asset that they hold in the sympathy and interest of the railway enthusiasts among the general public, and have done a great deal to encourage the growth of the societies formed to foster that interest. The result is that these societies, though probably fewer in number than those in Great Britain, are now of widespread scope and considerable influence, and contact between them and the railway administrations is firmly established. A friendly letter from the Association of American Railroads to *The Railroad Enthusiast*—the organ of the society of that name—appears in the May-June issue of that journal, pointing out that it has now become essential to national security that permits to inspect and photograph railroad equipment and facilities shall no longer be available, and that the restriction must be applied without favour or discrimination. Understanding and help on the part of the railfans is sought, "so that there will be no obstacle to a prompt resumption of railfan-railroad co-operation when the need for this restriction has passed." That this understanding is forthcoming is witnessed by the fact that in its previous issue *The Railroad Enthusiast* had already advised its readers to exercise the caution in their railway enthusiasms that the circumstances demand.

Making up Lost Time

DEFINITE instructions to locomotive drivers to make up lost time, referred to in an editorial note in the May 30 issue of THE RAILWAY GAZETTE, are not confined to the London Midland & Scottish Railway, but, as a letter from Mr. C. Grasemann in our issue of June 13 pointed out, were issued by the Southern Railway as long ago as 1932, and have now become common to all four main-line railways. It has needed war conditions thus to bring British practice into line with that of most other countries in the world, on which, under all necessary safeguards, the recovery of time lost by abnormal circumstances is regarded as obligatory. Hitherto in this country the nearest approach to any such instruction has probably been the "On Time" propaganda of the L.M.S.R., including the circulation among the staff of the monthly journal of that name, in which were set out records of specially meritorious time-regaining achievements, with the names of the engine crews concerned. In general, however, the matter has been left to the discretion of drivers, with very varied results, for whereas the more enterprising among the men would never fail to attempt at least some recovery of lost time, so far as the power of their engines permitted, others appeared equally determined never to do any more than the timetable demanded, and no official rebuke could be levelled against them in consequence. Often an entire shed would have as good a reputation for time-keeping as another would have a bad; and not a few consistently energetic time-regainers have had their enthusiasm considerably damped either by official discouragement or opposition from their colleagues.

The new instructions, however, put the whole question of time recovery on a proper footing. In this connection one safeguard previously lacking has now very largely been made good. In the discussion of a paper read on December 16, 1938, to the Institute of Transport by Mr. S. H. Fisher, Assistant Chief Operating Manager of the L.M.S.R., entitled "The Acceleration of Train Services," the matter of time recovery was raised, and Mr. Fisher's comment was that the practice, however desirable, could not receive full and definite official encouragement until express locomotives had been fitted with speedometers, and that at that time rapid progress was being made with the installation of this equipment. This lag behind Continental and American practice has now been largely made good, and even though the British speed indicators are chiefly of the non-recording type, they afford a valuable check to drivers against exceeding either local or general limits of speed when making up lost time. It may here be remarked that the tapes of self-recording speed indicators are in these days being found to possess a value considerably greater than the mere safeguard against infringement of speed restrictions. On the Chicago, Milwaukee, St. Paul & Pacific Railroad daily comparison of the tapes recorded on the locomotives of the company's high-speed Hiawatha service with master tapes in the office of the Superintendent of Operation made it possible to discover every abnormal check and raise the matter with the persons or department responsible, with the result that this principle has now been extended to all the express services of the railway.

An editorial article in the August 11, 1939, issue of THE RAILWAY GAZETTE, entitled "Recovering Lost Time," quoted a useful suggestion from the "British Locomotive Practice and Performance" feature of our associated monthly *The Railway Magazine* to the effect that over every British main line minimum point-to-point times should be laid down between all timing points, for each class of locomotive normally used in express passenger service, graded according to load, and that drivers should be expected to observe these times when running late. At least one British railway, the Great Western, in conjunction with the instructions to drivers as to time recovery, has now brought this system into operation, and we are glad to note that the G.W.R. reduced minimum times, which are now printed in the company's working timetables, are obligatory. There is all the difference, of course, between laying down the minimum times to which drivers *may* run and those which *must* be observed in the event of late running trains. An admirable example of the application of these principles is afforded

by the working time tables of the New South Wales Government Railways, a section of which is devoted to minimum times for all classes of engines and types of train, to be worked to in the event of late running; and train operating conditions in that State are such that no slackness in engine running is possible without serious consequences to the offenders. In another Australian State, however, similar detailed instructions are rendered useless to the point of being humorous by the fact that the aggregate "minimum" times are longer in many instances than the actual schedules of the trains—the result of lack of agreement between traffic and locomotive authorities as to what the running times should be. The recent British developments are a step in the right direction, however, and recognise the essential principle that, in view of the widespread and cumulative effect of late running, especially in so densely trafficked a country as this, restoration of late trains to their booked paths at the earliest possible moment is not merely desirable, but essential, in the interests of efficient operation. For this reason the official encouragement of lost time recovery in Great Britain is surely bound to persist after the war.

* * * *

The Railways of Rhodesia

THE thirteenth annual report of the Railway Commission of Southern Rhodesia, Northern Rhodesia, and the Bechuanaland Protectorate, covers the fifteen months ended December 31, 1940. The previous report was for a period of nine months, for reasons then explained. This is the fourth report since the amalgamation of the Rhodesia and Mashonaland railways, which was described in THE RAILWAY GAZETTE of February 11, 1938. In THE RAILWAY GAZETTE of April 25, at page 466, provisional results of the Rhodesian Railways for the years 1939 and 1940 were given from details made available in the annual report of the British South Africa Company and in THE RAILWAY GAZETTE of June 27 further comment was made on the deferment of the accounts and the decision of the High Court of Southern Rhodesia on outstanding matters in the accounts. The accounts of Rhodesia Railways Limited for the year ended September 30, 1939, were duly submitted to the commission. Railway operating revenue was less by £555,614, or 10.98 per cent. as compared with the previous year, when gross receipts reached a record figure. The principal decreases were in general merchandise, £267,456, and copper for export, £119,471, due partly, in the case of the copper, to the reduced rates which came into force in October, 1938. In working expenditure (including provision for depreciation and renewals), there was a small increase of £3,418, or 0.12 per cent. The principal figures were as follow:—

	1937-38	1938-39
	£	£
Coaching receipts	458,284	460,493
Goods receipts	2,291,976	2,024,520
Mineral receipts	2,047,960	1,775,969
Gross earnings	5,061,744	4,506,130
Operating expenditure	2,281,668	2,268,086
Depreciation and renewals	518,161	535,161
Surplus	2,261,915	1,702,883
Operating ratio, per cent.	45.07	50.33

Adding to the surplus, interest receivable, £236,702, and certain other credits, and deducting financial charges, of which the principal were £419,093 for income tax, and £251,895 for contributions to pension funds, realisable income remained of £1,241,339, to which is added £176,327 transferred from Depreciation & Renewals Account towards the sinking fund for debenture stock redemption, making a total of £1,417,666. The balance of this, after meeting £1,100,702 for debenture interest and sinking fund, £148,459 for reserve account, and £123,715 for the statutory dividend sum, was carried to Rates Stabilisation Account. The accounts of the company were submitted to the commission and no objections were received. The report contains, as an appendix, the text of the judgment relating to the over-provision for income tax in the company's accounts for the year 1937-38. Colonel G. A. P. Maxwell, Chairman of the commission, having proceeded on active service, Mr. J. S. H. Grant was appointed Acting Chairman, and Mr. W. C. Burrill was appointed Acting Secretary.

The Turkish Railways in 1940

AT the end of December, 1940, Turkey had in operation 7,434 km. (4,619 miles) of railway, of which 6,999 km. (4,349 miles) were owned and operated by the Government and 435 km. (270 miles) by private companies; the State thus owned and worked 94 per cent. The mileage operated by the Government consisted of 6,563 km. (4,078 miles) of standard gauge, 312 km. (194 miles) of narrow gauge, and 124 km. (77 miles) of broad (5-ft.) gauge track. The General Direction of State Railways, attached to the Ministry of Communications, is in charge of the working of the Government system. The two railways owned by foreign companies consist of a short stretch of 29 km. (18 miles) of narrow-gauge industrial track extending between Ilija and Palamutluk in the province of Kanak-kale, and of the South Turkish Railway running along the Syrian frontier in the south-east between Tchoban Bey and Nisibin, 406 km. (252 miles) of standard-gauge line. The Ilija—Palamutluk line is now in process of liquidation on account of the withdrawal of the company from business in this district. The linking up by railway of various parts of Asiatic Turkey has been one of the most important policies of the regime, as has been noted in our columns from time to time, and during the fiscal year ended May 31, 1940, further progress was made by the opening of the section of 47 km. (29 miles) from Diarbekr to Bismil on the line intended to extend eventually from Diarbekr to the Iraqi frontier. This line will also form part of the projected railway by way of Lake Van to the Iranian frontier. Other lines are projected to link centres along the Black Sea coast and other points at present without railway connections. When these are completed, the most important points in Anatolia will be connected, and the Turkish railway system will extend in the east to the U.S.S.R., Iranian, Iraqi, and Syrian frontiers.

The revenue of the Turkish State Railways from various sources has been increasing steadily in recent years. Total revenues amounted to £T43,382,390 during the fiscal year ended May 31, 1940, compared with £T22,597,657 during the fiscal year 1935-36. The following table shows the total revenues (in £T) of the system from various sources for the past five fiscal years:—

	1935-36	1936-37	1937-38	1938-39	1939-40
Passenger traffic	6,571,711	8,109,991	9,601,787	10,610,229	13,062,782
Luggage	162,306	184,076	265,059	304,927	329,439
Fast freight	439,222	609,105	519,802	498,568	427,441
Express	880,721	1,233,585	1,444,068	1,688,552	1,944,499
Ordinary freight	12,290,118	17,921,203	21,415,287	21,379,952	25,321,280
General income from transport	612,769	954,816	314,690	267,992	844,637
General income other than from transport	983,682	1,368,323	1,006,188	943,427	897,151
Port of Haidar Pacha	475,444	681,179	772,828	655,160	931,377
Port of Derince	181,684	170,252	176,195	81,126	86,813
Trabzon-Iran transit route*	—	—	—	—	36,971
Total	22,597,657	31,222,530	35,571,802	36,486,396	43,882,390

* A road route 652 km. (405 miles) long, worked by motorbuses and lorries.

The number of passengers carried during the fiscal year 1939-40 was 25,636,009, compared with 23,227,908 during 1938-39, an increase of 2,408,101. Passengers carried on suburban lines during the fiscal year 1939-40 numbered 14,926,776, and the number carried on the main lines was 10,709,233. Budget allotments for the past five years have increased from £T20,000,000 for the 1936 fiscal year to £T39,000,000 for 1939-40. Motive power and rolling stock owned at the end of the 1940 fiscal year included 901 steam locomotives, 23 motor railcars, 4 steam railcars, and 16,450 cars of all types (including 1,256 carriages and 14,805 wagons). The total personnel of the State Railways, including both officials and employees (excepting temporary employees), is estimated at 17,000. All Government employees, excepting a few foreign technicians, are required to be of Turkish nationality. In December, 1940, the monthly pay roll of the Turkish State Railways amounted to £T828,433, or £T9,941,196 on a yearly basis.

In present circumstances the railways of Turkey are obviously of very considerable potential strategic importance, as was indicated by the map reproduced at page 520 of THE

RAILWAY GAZETTE for April 5, 1940. The notable railway developments in Asiatic Turkey during the past two decades, which we have described from time to time, have improved out of all recognition the available transport services as compared with those during the last war. One point of interest is the high proportion of mileage now of the standard gauge of 4 ft. 8½ in., involving virtually the whole mileage of the country, excepting the Russian 5 ft. gauge lines across the frontier to Sarikamish. From Ankara in the west the standard gauge has been progressing steadily by new construction as far as Maden Yenikoy, and thence by the conversion of the 2 ft. 5½ in. gauge line to Sarikamish. It has been announced that the standard gauge has reached Erzurum, and a correspondent has recently given us an unconfirmed report that the conversion is now completed through to Sarikamish.

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Standard Gauge in the U.S.A.

APPARENTLY it was the introduction of British locomotives into the U.S.A. which resulted in early steam railways in that country—in the Eastern States—being built to the 4-ft. 8½-in. gauge. Earlier horse-operated lines had used different gauges, and two outstanding examples are the Quincy Railway (opened by the Granite Railway Company on October 7, 1826) which was of 5-ft. gauge, and the Mauch Chunk Railway (completed in May, 1827) which was laid to the 3-ft. 6-in. gauge. It was, of course, British locomotives, carrying the Stephenson influence, that took the 4-ft. 8½-in. gauge into many of the countries on the European Continent. In the U.S.A., British-built locomotives did not play an important part and thus quite early there was a departure from the gauge of 4 ft. 8½ in. The first important departure would seem to have been that of the Charleston & Hamburg Railroad in South Carolina which in 1830 was built to 5 ft.; this was adopted by connecting railways, and the gauge extended generally throughout the South. In 1835 a railway of 4-ft. 10-in. gauge was constructed in the State of Ohio and in 1839, the Erie Railroad was constructed on a 6-ft. basis. The States of New Jersey and Ohio established by law the 4-ft. 10-in. gauge. So rapid was the construction of railways in the States that it was not long before some of the separate systems were linked up, thus bringing into prominence the drawbacks of varying gauges of track, in compelling frequent transfers with inconvenience to passengers and serious delays to traffic.

In the Act of Congress of July 1, 1862, chartering the first transcontinental railway, it was provided that "the track upon the entire line of railroad and branches should be of a uniform gauge to be determined by the President of the United States, so that when completed cars should be run from the Missouri River to the Pacific Coast." By a subsequent Act, approved on March 3, 1863, it was established "that the gauge of the Pacific Railroad and its branches should be at 4 ft. 8½ in." In its annual report for the year 1868 the Pennsylvania Railroad Company recorded that it had on both its eastern and western connections a gauge of 4 ft. 10 in., and in Ohio 4 ft. 8½ in., the latter the prevailing gauge north of the Ohio and James rivers. The report expressed the view that 5 ft. should have been adopted originally as the uniform gauge of the U.S.A. and referred to the broad-tread wheels which were introduced for through traffic to overcome the maximum 1½ in. difference between 4 ft. 8½ in., 4 ft. 9 in., and 4 ft. 10 in. To reduce this difference the report recorded that the gauge of the Pennsylvania Railroad had been changed to 4 ft. 9 in., and the Ohio lines had been or were being changed to 4 ft. 9½ in., a process which was stated in the report for 1869 to have been completed. In 1892 the Pennsylvania Railroad adopted the 4-ft. 8½-in. gauge as standard for passenger tracks and 4 ft. 9 in. for freight tracks.

In 1871 there were no fewer than 19 different gauges in the U.S.A., ranging from 3 ft. to 6 ft., but, of the 487 railways at that time, 307 were of 4-ft. 8½-in. gauge, and their mileage exceeded that of all the others combined. The conversion of the Pacific Railroad of Missouri (now the Missouri Pacific) from 5 ft. 6 in. to 4 ft. 8½ in. in 1868, and of the Ohio & Mississippi (now part of the Baltimore & Ohio) from

6 ft. to 4 ft. 8½ in. in 1871, gave impetus to the standardisation movement, and by 1882 the Erie railroads had changed to standard to meet the demands for uninterrupted communication. Contrary to popular belief, the Southern systems adopted the 5-ft. gauge not with a view to obstructing Northern interests but because this width had been used in South Carolina (as already mentioned) and was considered technically the most suitable. The first post-Civil War policy of standardisation in the Southern States decided in favour of the Pennsylvania 4-ft. 9-in. standard. The organisation for the change to the standard gauge of the entire Southern systems of nearly 15,000 miles occupied more than two years, but the actual changeover was effected with great promptness and efficiency. A model conversion was carried out during 12 hours on July 8, 1885, as the result of the experience of which a very remarkable programme was prepared for the rapid conversion of between 6,000 and 7,000 miles on the two days May 31 and June 1, 1886. On the morning of June 1, 1886, the Florida Express ran over the changed line from Wilmington, N.C., to Jacksonville, Florida, a distance of 500 miles, at a speed which was stated to be 50 m.p.h., preceded by a pilot locomotive. The standard gauge of 4 ft. 8½ in. thus became virtually universal in the United States, and was made so formally by the following resolution of the American Railway Association, adopted April 7, 1897: "That 4 ft. 8½ in. should hereafter be the standard gauge of all tracks owned by the railroad companies forming this association."

The L.N.E.R. Medal for Courage

The directors of the L.N.E.R. have approved the design of a medal which will be awarded to those employees who show outstanding courage and resourcefulness in circumstances which, although not connected with enemy action, would, had they been so, have warranted recommendation for Government recognition. The medal is of silver, and bears on one side the shield of the arms of the company, imposed on a laurel wreath, encircled by the words "London & North Eastern Railway," while on the reverse side there is a scroll on which the name of the recipient will be engraved; this is supported by two sprays of laurel, the whole superimposed on an arc of the rising sun showing radiating lines of light upwards and outwards. Round the circumference in bold letters are inscribed the words "For Courage and Resource." The medal is suspended from a bar looped into a ribbon of royal blue with three narrow vertical white stripes in the centre.



Obverse and reverse of L.N.E.R. medal for courage

THE SCRAP HEAP

SWITZERLAND HAS "MERCHANT" NAVY

A steamer flying the Swiss flag recently put into Marseilles, according to a Reuter message from Vichy.

She was the *Generoso*, formerly a Panama vessel.

The commissioning and control of the *Generoso* is under the newly-formed Swiss Shipping Company. The crew is composed solely of neutral seamen, Swiss and Russian emigres.

The *Generoso* will ply between Spain and an Italian port. The goods for Switzerland will reach that country by rail.—From "Shipbuilding & Shipping Record."

* * * * *

A recent letter in *The North Bucks Times* contained the following: A train which has always been a popular one with residents of this district (Bletchley) and which leaves Euston soon after 5 p.m. is now dubbed the "Evacuees' Special," and railwaymen have even been heard to refer to it as the "Houndsditch and Whitechapel Express." It is usually full some fifteen minutes before it starts and two out of three of the passengers appear to be evacuees.

53 YEARS A REGULAR RAILWAY TRAVELLER.

Mrs. Anna Morf-Angst, of Nürensdorf, Switzerland, has been a regular traveller by the Swiss Federal Railways and its predecessors for the long period of 53 years, going at one time twice weekly, latterly once only, to take her farm produce to the Winterthur market. Going in the beginning from Hüntwangen, afterwards from her present home, she has invariably made the journey to and fro by rail.—From the "Swiss Federal Railways Bulletin" for April, 1941.

* * * * *

On a dark afternoon at Victoria station I had secured the last corner seat in a compartment for six persons. A moment afterwards there entered a large man in a top hat who looked offended at there being no corner seat for him. He put his hat down on one of the two remaining seats and went out again to the bookstall. While, he was gone another traveller came in who, in the gloom, did not see the absentee's hat, and sat down heavily on it. He sprang up and began to work out the situation with consummate art. He swiftly stroked the disordered nap on his sleeve, and deftly smoothed the cracks he had made in the fabric, watched by the gallery with intense interest.

When he had finished his hurried valeting he replaced the hat, and sitting down in the vacant seat effaced himself behind his paper. That seemed like the curtain. Little did I guess how sublime a *denouement* was to follow. Just before the train started, the absentee returned. He forgot he had

put his hat on the seat, and sat down on it himself. It was impossible for us, who had breathlessly watched this drama unfold, to help laughing, but we could not, without betraying the man whom Providence had so miraculously protected, explain the true reason why we laughed.—E. F. Benson, in "Final Edition."

STATION USED AS CHURCH

Lack of a church building was no deterrent to the establishment of a regular Sunday school and once-a-month preaching services in Avalon, Miss. Acceding to the request of several leaders in the community, the Illinois Central System lent its station, which has been remodelled to serve as a meeting house. Seats and electric lights were installed and a piano purchased. Although the population of Avalon is 50, more than 100 persons were in attendance at the party last Christmas.

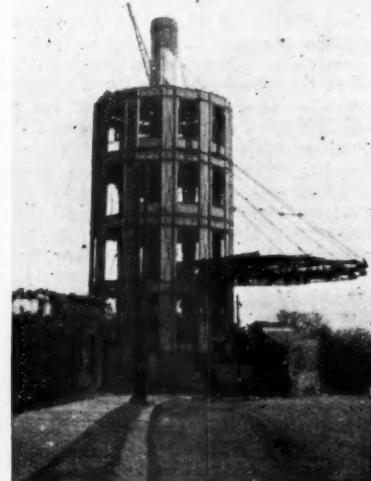
BANGING DOORS

The one place where one may bang a door with vigour, making a great clatter in the process (without being asked were you born in a stable) is in a railway carriage. Going or coming, one's inhibitions may find a stimulating outlet in this operation. I have seen carriages shudder under the impact of a wildly flung door. I have heard windows rattle as though from the blast of a high-explosive bomb. But nobody seems to mind. Newspapers were not lowered, lips were not bitten nor eyebrows raised; frowns were absent. In fact, by the complacency of all con-

cerned, one is assured that the correct thing to do is to bang carriage doors well and thoroughly. Our pent-up city man, returning from a day filled with worry and frustration, may, without losing cast, indeed, with dignity—blast the whole lot of 'em to Jericho with one mighty sweep of his arm. Is it not a blessing?—"Quidnunc" in "The Irish Times."

THE CRYSTAL PALACE

Reference has often been made to the railway associations of Joseph Paxton's original designs for the Crystal Palace, and these designs were reproduced at page 886 of our June 28, 1940, issue. The original building was erected in Hyde Park for the Great Exhibition of 1851; taken down in 1852; and re-erected at Sydenham where it was opened by Queen Victoria, for the second time, in 1854. As designed, it had no heating system, and Isambard Kingdom Brunel, the famous first engineer of the G.W.R., who was consulted regarding the provision of chimneys for the heating plant, designed the two towers of the Crystal Palace and incorporated in them the water tanks required to maintain the pressure for supplying the ornamental fountains. The main Crystal Palace was demolished by fire on November 30, 1936, but the two towers, about 280 ft. high by 40 ft. in diameter, survived. In June, 1940, George Cohen, Sons & Co. Ltd. received the contract for demolishing the towers so as to recover the scrap metal of some 1,600 tons of iron. The south tower was dismantled, as shown below, and the north tower felled by the use of explosives on April 16 last.



Two views of the south tower of the Crystal Palace. The left picture shows it complete and before the replacement of the Croydon trams by trolleybuses; the right view was taken during the final stages of demolition

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

ARGENTINA

Half-yearly Railway Returns

According to the returns issued by the *Instituto de Estudios Económicos del Transporte*, the global receipts of the combined State and privately-owned railways during the first six months of the current financial year showed a decrease of \$22,319,000, or 9.3 per cent. as compared with the corresponding period of 1939-40. This was due to the poor working results of the foreign-owned lines, as the State Railways' earnings were higher by \$975,000, or 1.9 per cent. Goods receipts dropped from \$172,583,000 to \$151,201,000 a decrease of \$21,382,000, or 12.4 per cent. and passenger receipts diminished by \$920,000, partly owing to the lower fares in force. Miscellaneous receipts also fell by \$17,000.

The following tables give the comparative figures for these months in 1939 and 1940 for all the State and foreign-owned railways:—

		WORKING RESULTS		Increase or decrease	Percentage
		July-December 1939	1940		
Goods—	—	22,483,000	18,679,000	—3,804,000	—16.9
Tons	...	...	...	...	...
Ton-km.	...	...	...	...	...
Passengers—	—	6,332,981,000	5,630,234,000	—702,747,000	—11.1
Number	...	...	...	...	...
Passenger-km.	...	...	...	...	...
Receipts (pesos)—	—	83,037,000	83,051,000	+14,000	—
Goods	...	...	...	...	...
Passengers	...	2,137,360,000	2,172,162,000	+34,802,000	+1.6
Miscellaneous	...	...	...	...	...
Total receipts (paper pesos)	...	172,583,000	151,201,000	—21,382,000	—12.4
Receipts (pesos)—	—	45,584,000	44,664,000	—920,000	—2.0
Goods	...	...	...	...	...
Passengers	...	22,072,000	22,055,000	—17,000	—0.1
Miscellaneous	...	...	...	...	...
Total receipts (paper pesos)	...	240,239,000	217,920,000	—22,319,000	—9.3
		GROSS RECEIPTS		Increase or decrease	Percentage
		July-December 1939	1940		
(\$ paper)	(\$ paper)	(\$ paper)	(\$ paper)	(\$ paper)	(\$ paper)
B.A.G.S.R. and subsidiary lines	—	54,375,000	51,947,000	—2,360,000	—4.3
Central Argentine	...	51,809,000	39,659,000	—12,239,000	—23.6
B.A. and Pacific	...	32,279,000	31,083,000	—1,196,000	—3.7
B.A. Western	...	19,442,000	18,214,000	—1,228,000	—6.3
Entre Ríos	...	6,889,000	6,209,000	—680,000	—9.9
Argentine North Eastern	...	4,465,000	4,383,000	—82,000	—1.8
Total receipts of British companies	...	169,190,000	151,405,000	—17,785,000	—10.5
Santa Fé Prov.	...	8,051,000	5,866,000	—2,185,000	—27.2
Compañía Gral	...	5,903,000	4,157,000	—1,746,000	—29.6
Central Buenos Aires	...	2,831,000	2,282,000	—549,000	—19.4
Ros. Pto. Belgrano	...	2,322,000	1,293,000	—1,029,000	—44.3
Total receipts of private companies	...	188,297,000	165,003,000	—23,294,000	—12.4
State railways	...	51,942,000	52,917,000	+975,000	+1.9
Grand total for all railways	...	240,239,000	217,920,000	—22,319,000	—9.3

Summer Holiday Traffic

The 1941 summer holiday season in Argentina, in spite of bad weather, was again marked by a heavy tourist movement to the various hill, seaside and lake resorts, the rush to which became intensified during carnival (February 23-25). The Central Argentine Railway handled a heavy passenger traffic to the Córdoba hills. Passenger traffic on the B.A.G.S.R. to the South Atlantic resorts of Mar del Plata, Necochea, and Miramar was well maintained, and 12,000 passengers were carried to the first-mentioned point in two days. The enterprising efforts of the B.A.P.R. to popularise the Province of Mendoza and the Andine region as tourist centres were rewarded by the large number of

passengers who travelled to this picturesque district. The remote Southern Lake district also witnessed a heavy influx of tourists, the number of passengers who travelled over the combined B.A.G.S. and State Railways to San Carlos de Bariloche en route to the Nahuel Huapi National Park being nearly 3,000. In addition, the numerous cheap excursions run by all the railways from the provincial centres to Buenos Aires during the carnival holidays were also well patronised.

BRAZIL

Sao Paulo e Minas Gauge Conversion

Conversion from 60 cm. to metre gauge has now been completed from Bento Quirino (in the State of São Paulo) to São Sebastião do Paraíso (in Minas Geraes), the São Paulo e Minas line, thus conforming in gauge to the Mogyana and Ribeira Sul-Mineira* systems adjacent. Through running is

used for much-needed rehabilitation and that rates will be adjusted to insure satisfactory revenues.

URUGUAY

New Railway Sanctioned

On January 29 the Legislature passed a Bill authorising the construction of an extension of the State system from the Sarandi del Yal Norte line to Banquillo near the Rio Negro, a distance of 40 km. A sum of 1,900,000 pesos was allotted for this purpose in the Public Works programme for 1940-41.

CANADA

Permission to Close Lines Refused

Applications of the Canadian Pacific Railway and Canadian National Railways for authority to close three sections of line in Manitoba were refused under a majority judgment made by the Canadian Board of Transport Commissioners. The lines are (a) the 54-mile section of the C.P.R. Varcoe Subdivision between MacGregor and the junction with Rapid City Subdivision at Varcoe; (b) the 20-mile section of the C.P.R. line in Minita Subdivision from a point near Hamiota to Minita; and (c) the 75 miles of the C.N.R. line in Rapid City Subdivision, between Hallboro' and Beaulah, or all but 150 miles in all.

MOZAMBIQUE

Tete Railway Construction

The first 30-km. from Dona Ana towards the mining district of Tete were opened for traffic last November, and it is expected that a further 70 km. will be completed this year, making 100 out of the total length of 270 km. available for traffic to Beira. The track consists of 60-lb. rails laid on hardwood sleepers grown locally, and the bridges—the largest of which, on the first section, is three spans of 50 ft.—are mainly of concrete made with Lourenço Marques cement.

Manjacaze-Manele Line Opened

In October last another new 50-km. line was completed between Manjacaze and Manele via Serracão, a timber-milling centre, and opened for traffic.

SWEDEN

The Halmstad-Nassjö Railway

The Halmstad-Nassjö is one of the leading privately-owned railways in southern Sweden and consists of 255 route-miles of standard gauge line. Its main line branches off from the State Railways Stockholm-Malmö main line at Nassjö and runs in a south-westerly direction to the port of Halmstad to the north of Helsingborg on the Kattegat, a distance of 122 miles. The remainder of the route-mileage is made up of the following branches:—

Jönköping Hamn-Vaggeryd	...	...	...	22 miles
Gislaved-Reftete	...	...	...	12 "
Falköping-Landeryd	...	...	...	81 "
Atran-Kinnared	...	...	...	11 "
Torup-Hyltebruk	...	...	...	7 "

This concern paid a dividend of 5 per cent. in 1940, the same as in 1939.

*A constituent of the Ribeira Sul-Mineira de Viação system

PROBLEMS IN RAILWAY CONSTRUCTION IN THE FAR EAST

A paper read by Professor E. R. Hondelink before the London Section of the Permanent Way Institution on May 12, 1941

THE author of this paper, which is of unusual interest, is Professor of Transport at Delft Engineering University (Holland), and came to England at the time of the German invasion of the Low Countries. He writes from first-hand knowledge of his subject, having served for many years in the Far East, first as Chief Engineer and Manager of various new lines, and later as advisor to different Governments on such matters.

Professor Hondelink explains that railway construction in East Asia has continued latterly on a larger scale than in any other part of the world, due to the absence of adverse development conditions which obtain in the West. He also calls attention to the important bearing of certain railways in the Far East on the present war.

Problems of construction there have much in common with those encountered in other continents, and fall under two main headings, namely, engineering and organisation and administration. The bulk of the former are met in the early stages of construction—or at any rate prior to rail-laying—and are due to transport difficulties and shortage of skilled labour, whereas the latter are associated with differences in customs, mentality, methods, resources, and climatic conditions, which arise in such vast territories. The effect of the absence of any means of communication and transport in the early stages of the work is illustrated by the time taken—seven days—to cover on horseback the distance of 140 miles between the termini of a proposed new main line.

Conditions, Some Favourable, Others the Reverse

In contrast to the peculiar problems to be solved, there are several conditions very favourable to the building of new lines in the Orient, chief among these being the absence of local laws, by-laws, and rules and regulations, whether of Government or local authority. These conditions reduce considerably the time required for construction, and have the effect of lowering the capital cost represented by interest on capital during construction. The acquisition of the necessary lands is also rendered easy of achievement by the introduction in all agreements and contracts of a clause stipulating that the Government puts at the disposal of the construction departments all the land required, the arrangements for purchase being placed in the hands of an expropriation committee which follows the railway survey parties.

Speed of construction is also aided by physical features such as—curiously enough—the absence of roads with the attendant need for bridges or level crossings, the concentration in walled towns of the dense population, and the limitation of classes of property. These advantages allow the line to be laid out in long straight stretches and with easy curves and gradients.

This, however, introduces another problem, namely, the co-ordination of the short, straight, and cheapest line with the most suitable revenue-earning alignment touching traffic-producing centres. Many sections in China have been built as direct lines between termini without consideration for intermediate potential sources of traffic and leaving thriving market towns without stations. Small savings in first construction costs do not outweigh higher operating revenues obtained by providing suitable outlets for such traffic.

Surveys

Chief among the early problems encountered is the non-existence of maps, a severe handicap to the survey parties. These parties, though numerically small in technical personnel, are large in total strength because lines of communications and supplies must be provided, and adequate protection against marauders and bandits has often to be arranged. For these reasons detailed surveys require a good deal of time, which, in war and unsettled times such as frequently prevail in China, is not always available, and

thus it is that lines are often constructed along routes which are not the most economical either in first cost or in subsequent operation. An example of a line built without surveys is one from Peking into Jehol (Manchuria), built by the Japanese in the early day of their Chinese campaign, and on sections of which trains can only be run with one engine for every wagon drawn, so steep are the gradients. Aerial surveys have become of very great assistance, though in many cases the cost prohibits this method.

The Permanent Way

On the subject of permanent way, Professor Hondelink explains that, unlike standard practice in the West, it is the custom in the Far East—at any rate in easy country—for the track to be laid almost as a surface line in advance of other construction works, so as to provide means of transport for the various materials and equipment required for the work, this transport being a most important problem because of the absence of other means by land or water. This method also confers certain financial advantages, for, once a dozen miles of any kind of track have been laid, there is an immediate demand for transport of men and goods by construction material train, enabling revenues to be earned in advance of operation of the line in its finished state.

In the selection of type of track, simplicity is the guiding principle, the traffic to be carried representing only a fraction of that on European railways. In general, flat-bottom rails are the most suitable, variations in axle-loads which may occur between the various systems being catered for by the employment of lighter or heavier rail sections, and variations of sleeper spacing. Excellent stone for ballast is usually found near at hand. Bull-head track possesses the advantage of comprising few parts of simple construction, but this advantage is offset on account of its cost, and because, in a country where law and order are not the same as in the west, wooden keys have a habit of disappearing to be used as fuel, and even steel keys find their way to the village blacksmith, who would ask no questions and soon transform them into other implements useful to his customers.

Signalling

In signalling, there is a choice of two policies; to install an elaborate system, or to have no signals at all, placing reliance on the use of red and green flags and lamps in the hands of pointsmen. Generally speaking, the latter course works satisfactorily, being helped by the favourable climate, by low train speeds, and by the highly-developed sense of responsibility of the engine drivers. Moreover, it has frequently been found that, where a signalling system has been installed, the home signals are ignored by very good native drivers, who are convinced that they know better where to stop their trains than the lower caste signalman, who does not even stand by the side of the signal! This is typical of the problems of mentality mentioned earlier.

Staff and Labour

Among the staff are to be found men from all over the world, employed on works to which they are specially suited. These various nationals usually get on well together, and with the Chinese, though Chinese from various provinces do not co-operate with one another. Language is a problem of some magnitude, but the Chinese is a good linguist and interpreters are available in adequate numbers; use is made of French and English in dealing with the authorities. Finally there is the question of labour. Throughout the Far East there is an abundance of excellent construction labour available close at hand in almost all cases, and the wages are extremely low. The coolie is very hardworking and usually amenable to all reasonable control.

ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

The All-night Bus

IR raid or no, London night workers such as marketmen, newspaper workers, postmen, musicians, and waiters, must travel in the small hours of the morning, and many of them use the all-night bus routes. With few exceptions the passengers are "regulars" who are as well known to one another as to the conductor. He knows to whom he should say "goodnight" and to whom to say "good morning," and often punches their tickets before they have sat down. He also knows where some of them live and this knowledge proves useful on occasion. Recently, an elderly charwoman came hurrying out of a house near Camden Town one night and ran after the bus shouting "Don't leave me behind." The next night she was not there when the bus came along, so the conductor knocked on her door and told her to "hurry up." This was an unusual occurrence, but passengers on an all-night bus do not grumble if a late-comer is given a few seconds of grace; they may want it themselves the next night. To some passengers the all-night bus is known as the sleeping car, for, as soon as they board the bus they go to sleep and rely upon the conductor to wake them at the right stop. Of course, some of the "regulars" have disappeared since the war began. Markets have been moved, postmen do not start work so early, and there are fewer night-club musicians and waiters, but in place of these the Forces have provided a new type of rider. All night long Servicemen are passing across London and most of them depend on the all-night buses and the encyclopaedic knowledge of the conductors. The first all-night motorbus service in London was introduced on July 15, 1913, but after 28 years the facility—now considerably extended—is still very little known to the general public at large.

San Paulo Motor Transport in 1940

THERE were 32,905 motor vehicles registered in San Paulo in 1940, an increase of 2,584, compared with 1939, according to the latest report of the Directorate of the Service of Transit of the State of São Paulo. As previous official returns gave the total as being 30,557 at June 30 of last year, it would appear that the increase was one of 2,348 vehicles during July-December. The total registered in the interior of the State during the first six months of last year was 32,263 vehicles. Adding the 32,905 vehicles for the municipality of São Paulo gives a total of 65,168 for the State as a whole. As the number of infractions of the traffic regulations in San Paulo itself and on the main State roads was 130,672, it is seen that the average was two infractions for every vehicle. The figures which are provided in the report regarding the movement over the main roads of the State show that this is becoming of very real importance. These main roads are six in number: San Paulo to Bragança; San Paulo to Rio de Janeiro; San Paulo to Santos; San Paulo to Paraná; San Paulo to Matto Grosso; and San Paulo to Minas Geraes. Some totals in respect of the movement for the six roads in 1940 are as follow: passenger cars in transit, 519,625; lorries in transit, 418,754; buses in transit, 58,119; motor cycles in transit, 1,849; passengers in transit, 3,571,326; cargo carried, 1,120,997 tons. The San Paulo to Santos road is the busiest, and the next in importance is the San Paulo to Rio road. A comparison for the two is given below:—

	San Paulo to Santos	San Paulo to Rio
Passenger cars in transit	209,293	76,215
Lorries in transit	90,289	81,448
Buses in transit	10,570	11,448
Motor cycles in transit	893	173
Passengers in transit	1,205,634	695,980
Cargo carried	318,078	243,620

As regards the number of buses and lorries in transit, the San Paulo to Paraná road occupied first place with 15,536 and 100,896 respectively.

The Pan-American Highway

THE inter-American Highway was the subject of a special message by President Roosevelt to Congress on May 1, in which funds were sought to complete the highway from the southern frontier of Mexico 1,550 miles to the Panama Canal. The total cost of the highway is estimated at \$101,000,000, and the minimum cost of an unsurfaced road at \$30,000,000. The United States Government would finance up to two-thirds of the cost, with a maximum of \$20,000,000, extended over five years. The route is through six countries, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama, traversing dense jungles and crossing high mountain ranges. An aerial survey has been made by American military planes, but officials of the Public Roads Department have expressed the opinion that costs may exceed the estimates considerably. On the other hand, Mr. Cordell Hull, in his report to Congress, stressed the strategic importance of a through highway from the United States to Panama from the standpoint of the defence of the Caribbean area.

South of Panama, on the Peruvian section of the Pan American Highway, the work of asphalting is proceeding. The 260-km. (160-mile) Chiclayo—Piura section is in hand, and the length between Piura and the Ecuadorian frontier will be ready a few months later. This will carry the asphalted surface from the frontier to a distance of 1,520 km. (945 miles) through Lima to a point just beyond Nasca. The total length of the highway in Peru, from La Tina on the Ecuadorian frontier to Concordia on the Chilean border, is 2,260 km. (1,628 miles). An American company recently signed a contract with Ecuador for building about 420 km. (260 miles) of roadway at a total cost of \$900,000. It is understood that the construction planned will be along the route of the Pan American Highway in Ecuador. The work is being financed by part of the proceeds of a loan to the Ecuadorian Government by the (U.S.A.) Export-Import Bank.

"Motor Transport"

THE war has been blamed rightly and wrongly for many things, and to its ample shoulders we would at one time have transferred our neglect to deal at length with one of the most remarkable papers ever compiled on the subject of road transport. This work of Mr. Ottaway, bearing the title at the head of this note, was prepared for the American summer meeting of the Institution of Mechanical Engineers in 1939, a meeting abandoned because of the European situation. By way of *obiter dicta* we have referred to facts and figures from this paper more than once, but it has been borne upon us that perhaps we have done well in refraining from taking a slab of pudding or even caviare sandwiches from the paper and publishing it or them as a measure of the paper. Such a course would have been a disservice to those of our readers to whom the Institution of Mechanical Engineers' Proceedings are not readily available, for it might have labelled the work as one of those preparations which it is the sometimes distasteful duty of the technical press to record. Even now we can do little more than spur on those who have not read this paper to get hold of a copy, though the means be not easily to hand. Statisticians, compilers of records, and those who require a précis of English road law as it applies to vehicles will find in it most of what they want, but to the thinking man, be he director, executive, transport official, or engineer, it presents a question on every page, and in parts one in every paragraph. To any who will ponder on the whole basis on which road transport must be re-erected after the war this paper will give a succinct review of the major problems, and a little reading between the lines will indicate that some of these are a good deal bigger and more revolutionary than is generally supposed.

Road Transport and the War—23

Grouped vehicle insurance extended—Coach services suspended—Meat Transport Pool—Road transport in Holland and Germany—Producer gas progress—Alternative fuels in Finland and Eire

The Director-General to the Ministry of War Transport states that since September, 1939, insurers have agreed for periods of three months at a time to continue and extend, without any general increase in rates, existing policies for "Grouped" motor goods vehicles, although the Emergency Powers (Road Vehicles & Drivers) Order, 1939, removed certain restrictions on "A," "B," and "C" licences under the Road & Rail Traffic Act, 1933. This arrangement was extended until May 31, 1941, and the Minister is glad to announce that the insurers have now agreed to extend the arrangement until August 31, 1941.

Road-Rail Bookings Discontinued

The London Passenger Transport Board is shortly withdrawing ordinary road-rail bookings, so as to obviate the strain which they put on the memory of the women conductors who cannot be expected to have the knowledge of the tubes and their scales of fares gained by men after years at the job. Road-rail season and workmen's tickets are not affected. The road-rail ticket was introduced mainly to prevent congestion at booking offices of the underground railways. The extensive use of automatic ticket-issuing machines, which in many cases also give change, has reduced the need for through tickets in recent years.

London-Birmingham Coach Service Suspended

One of the regrettable results of the recent Government moves to conserve fuel even more carefully than heretofore, has been the elimination of some road transport services which provided the effective means of public transit in certain areas. A particularly noteworthy example is that of the London—Daventry—Birmingham coach service of the Birmingham & Midland Motor Omnibus Co. Ltd. (an associate of the L.M.S.R. and G.W.R.) which the Regional Transport Commissioner in Birmingham ordered to cease after Wednesday, June 4. London—Birmingham coach services have been running for many years, but the regular daily services began in 1928 and these, amplified and varied as to route, formed the basis of the system of services in operation before the war. Although these services were maintained by half-a-dozen different operators, most of the companies were associated with one other and a comprehensive system was worked by the North Western Road Car Co. Ltd. and Majestic Express Motors Limited of Stockport and the Birmingham & Midland Motor Omnibus Co. Ltd. (Midland "Red"). Immediately before the war this system consisted of six departures each way by day and one by night during the summer and three departures by day and one by night during the winter. With the advent of the war, most of these services were at once whittled down because of fuel rationing and, although some continued until early in July, 1940, all were eventually ordered off by the Regional Transport Commissioners, except one daily departure each way by the Midland "Red" between London and Birmingham via Barnet, St. Albans, Dunstable, Fenny Stratford, Stony Stratford, Towcester, Daventry, Dunchurch, Rugby, and Coventry. This is the service now withdrawn.

With the exception of the through trains between London and Birmingham, which call at Rugby and Coventry, train services between intermediate points on the coach route are very meagre (with no trains on Sundays) or non-existent. Moreover, the stations are not on the main line, connections are often poor, and there are no Sunday trains. The coach service has been carrying increasing numbers of passengers since the war and during May last the average was approximately 45 each way per diem. Of these fewer than 25 per cent. were through passengers between London and Birmingham. Through dispersal of works, schools, and so forth, the population along the route has increased greatly, and traffic to and from these intermediate towns and villages was

considerably in excess of pre-war traffic. Various intermediate points in the middle part of the route are not even linked by local bus services.

Auxiliary Conductors in the Birmingham Area

The widespread motorbus organisation of the Birmingham & Midland Omnibus Co., Ltd., has suffered particularly heavily from the concentration of loading during peak hours and, despite an energetic campaign in the local press and otherwise, to secure staggering of hours in factories and to deter non-essential travellers during these peak hours, only limited success was achieved. One interesting method adopted to deal with the heavy loadings during peak hours was the appointment early last January of auxiliary conductors who receive no remuneration but are authorised to travel free on the platform of the double-deck buses on the understanding that they assist passengers to get on and off, signal the vehicles to start and stop, and generally assist the conductor or conductress in all duties excepting the issue of tickets and the taking of cash. These auxiliary conductors are issued with a white armband lettered in black as follows :—

B. M. M. O.
AUX .CON.

Normally these auxiliary conductors simply travel on the platforms of Midland "Red" double-deck buses while going to work and on the return journey. They are allocated to certain journeys on certain routes between their homes and places of work in order to obviate three auxiliary conductors turning up for one bus and none for the other two. The following are the regulations for auxiliary conductors, a copy of which is handed to every volunteer :—

Auxiliary conductors are required to assist conductors and conductresses during the morning and evening and Saturday mid-day rush periods on double-deck vehicles only.

Their duties will be as follow :—

1. The loading and unloading of vehicles.
2. Signalling vehicles to start and stop as follows :—

One ring ...	...	...	...	...	...	Stop.
Two rings ...	...	...	...	...	...	Start.
Three rings ...	...	...	...	...	...	Vehicle full.
Four rings ...	...	...	...	...	...	Emergency stop.
3. Calling out of destination of the vehicle or names of stopping places.
4. Looking out for intending passengers.

All persons authorised to act as auxiliary conductors will be issued with an armband lettered "B.M.M.O. Auxiliary Conductor." Such persons will not be asked to pay their fares between the hours of :—

Monday to Friday ... Before 9.15 a.m. and between 4.15 p.m. and 7.0 p.m.
 Saturdays ... Before 9.15 a.m. and between 11.30 a.m. and 2.0 p.m. and 4.15 p.m. and 7.0 p.m.

providing they are wearing the armband and riding on the platform, assisting the conductor.

They must board vehicles on inward journeys before reaching terminal points.

SAFETY FIRST must be the primary rule of auxiliary conductors and they must make sure that passengers are properly on or off the vehicles before giving the starting signal.

When nearing a stopping place they must call out in a loud, clear voice, the names of the streets, roads or thoroughfares that the vehicles are approaching. This is particularly important at night time. When the stop is actually made, the destination of the vehicles must be announced.

One special duty is to see that intending passengers are not allowed to board vehicles before the actual stop is made. The idea is to prevent the rushing of the more agile to the detriment of the more orderly people.

When on duty auxiliary conductors must wear on the left arm the official brassard issued by the company and always remain on the platform.

Auxiliary conductors when on duty cannot be permitted to smoke.

Under no circumstances is more than one auxiliary conductor to be on duty on any one vehicle at one and the same time.

Any uncollected fares that may be handed to auxiliary conductors must be paid to the official conductor or conductress and the appropriate tickets received.

Passengers must not be allowed to stand in the upper saloon.

It must be clearly understood that auxiliary conductors must not interfere with destination indicators or any of the company's equipment.

It is desirable that auxiliary conductors should be familiar with the whole of the route on which they are operating in order to give all possible assistance and answer enquiries.

In all cases of accidents the official conductor or conductress and driver are to be informed immediately, so that they can follow out the regulations relating to such matters.

O. C. POWER,
Traffic Manager.

Chief Traffic Offices,
Bearwood.
March 28, 1941.

Mr. O. Cecil Power, Traffic Manager of the Birmingham & Midland Motor Omnibus Co., Ltd., tells us that the system

undoubtedly worked well last winter and that he proposes to adopt it to an even greater extent during the coming winter.

The Meat Transport Pool

It will be recalled that an important step designed to increase the efficiency of goods transport by road for war purposes was announced by the Ministry of Transport on January 23, the broad principles of which had been formulated in collaboration with the Road Haulage Consultative Committee. This amounted to the entry of the Ministry of Transport into the field of commercial haulage operation by undertaking to carry, in hired vehicles, regular blocks of Government traffic. The Minister announced on February 17 that, as a first step in the operation of the new scheme, the Ministry would take over the organisation of the Wholesale Meat & Provisions Transport (Defence) Association, usually known as the Meat Transport Pool. An interesting review of the history of the pool was given recently by Mr. C. T. M. Fairclough, Chairman, at the annual meeting of the association. He recalled that, a year or more before hostilities broke out, the organisation began to plan for the wartime transport of meat, but, owing to the difficulty of securing from the appropriate Government Department agreement to the proposals put forward, final preparations had to be completed in the last days of August, 1939. Remuneration presented a special difficulty in negotiations with the Ministry. First, it was not desired to operate as a profit-making concern. Secondly, it was necessary for the Government to have first call on all the meat vehicles entered in the Meat Transport Pool. Thirdly, it was essential to ensure that no member should be allowed to benefit as a result of the allocation of traffic, and that remuneration should not depend on the amount of work which any particular vehicle might perform. These requirements were satisfied by prevailing upon the Ministry of Food to adopt the organisation's pay-load-capacity remuneration scheme, under which every member was assured the same margin in proportion to his entered vehicles as he earned in a standard year selected by him. The actual amount received from the Ministry in respect of an operator was paid over to him without deduction, and all overhead expenses have been paid by the Ministry. The revenue of all members is assured on the basis of their pre-war profits, and, therefore, no question arises of making profit out of the war.

As a result of pooling operations, said Mr. Fairclough, the Government saved approximately £1,000,000 during the first year's operations, a figure arrived at by setting actual transport costs against the charges as they would have been on a tonnage basis. In the first four months of the war the activities of the organisation were confined to bulk movements of meat and retail distribution in the Metropolitan and South-Eastern Area. Later the organisation was asked to assume responsibility for all movements of meat and livestock by road throughout Britain, the latter in connection with the Associated Road Operators. The activities of the Meat Transport Pool were so successful that the suggestion was made that the organisation could be extended to cover other commodities besides meat. Further reference to this was made at page 195 of our February 21 issue. Today the pool deals with large quantities of non-meat traffic, and its help has been of the utmost value to various Government departments.

Bicycles in Holland

Shortage of rubber has set the transport authorities in Holland a problem with regard to bicycle traffic. Over 4 million bicycles were in use daily in Holland, one machine to two members of the population. A year ago private motorcar traffic was severely restricted for lack of petrol. Railway journeys were discouraged, as the lines were stated to be needed for transport of essential commodities, and the use of bicycles was officially encouraged, for private use, and for transport of goods and even passengers. Bicycle taxis, illustrated in THE RAILWAY GAZETTE of January 24, 1941, at page 89, appeared in the streets. Recently, members of the public have been warned to use their cycles sparingly as the shortage of new tyres is growing worse. Only two months ago the bicycle tax was cancelled and the measure

was duly used as propaganda for the Nazi care for the people; now it is apparent that the measure had to be taken because uninterrupted use of the bicycles could not be maintained. Measures announced in May to curtail the use of bicycles are severe. No new tyres are to be supplied without a permit, and a permit is issued only if the old tyre is produced and is worn threadbare. It is recommended to turn the tyre once during its life, as one side wears slightly more than the other owing to the camber in the road surface. No new tyres are granted to those whose work or school is nearer than 5 km. (3 miles) from home, and for transport vehicles if the daily mileage is under 15 km. (9 miles). Bicycle taxis were prohibited from May 19, as it is now said that these vehicles are degrading and "unworthy of their users, members of a Nordic race."

The German Lorry Industry

German owners of lorries are organised in the Reichsverkehrsgruppe Kraftfahrgewerbe (R.V.K.), which, at the outbreak of war had some 140,000 members. This organisation has supervised the transfer of lorries to the Army, it allocates fuels and materials to its members, and it administers the industrial self-help funds, as well as the distribution of Reich credits. Within recent weeks the R.V.K. has made arrangements for insuring short-distance goods traffic by road, according to the *Kölnische Zeitung* of May 24; in contrast to the insurance of long-distance goods traffic, which is enforceable by law, the insurance of short-distance traffic is left to the discretion of lorry owners. The policy covers any loss or damage to goods in transit, and the premium for each lorry has been fixed at RM. 75 per annum.

Producer Gas Progress and News

Two patents for gas producers have been taken out recently by members of the Fuel Research Station, at Greenwich. The first, No. 531,090, has claims based principally upon its suitability for mass production; otherwise it is of fairly general cross draught design. The second, No. 532,524, combines the cross-draught and down-draught principles, and its feature is a moving grate with positive actuation from outside; the furnace is almost hopper-shaped and the gas offtake is at the bottom, just above the ashpit.

One fire is usually enough for most operators, but two are a feature of the latest Gohin producer (patent No. 534,164), one of them being above the other. Clinker formed in the main high-temperature zone accumulates and a secondary fire promoted by the entry of air upwards through the bottom burns more slowly through the mixed fuel and clinker in the lower regions.

Vauxhall Motors Limited, of Luton, has now entered the producer-gas field, and has designed a cross-draught producer with an ash-discharging floor plate below the fire, and also an inlet manifold for petrol-started producer-gas vehicles, the object of which is to provide passages of cross-sectional area appropriate to the requirements of the two fuels. Another recent patent (No. 528,284) covers the design of a producer to burn wood, peat, straw, or other combustible vegetable matter, and an attempt is made to crack the gas to change or burn the ingredients which usually cause damage because of the tarry or acid nature of the gas from such fuels.

A petition introduced by Dorland Advertising Limited for the winding up of British Vehicle Producer Gas Limited (maker of the B.V.P. cross-draught plant) was heard in the Law Courts in June.

Producer Gas in Finland

By the spring of 1940 no petrol was available for private cars in Finland, and lorry owners could obtain a limited supply only if they could show that arrangements had been made to instal wood or charcoal-burning gas producers. As a consequence, by the end of 1940 there were about 8,500 producer-gas vehicles in traffic.

Alternative Fuels in Eire

The Minister of Supplies has made an order entitled the Emergency Powers (Gas-Equipped Vehicles) Order, 1941, prohibiting the fitting after June 9 of motor vehicles with the equipment for the use of gas not generated on the vehicle. The effect of this is to restrict the use of town gas, in either low-pressure or high-pressure forms, but the new law does not affect producer-gas plants.

LONDON TRANSPORT COUNTRY SERVICES

Some notes on the organisation of the area outside the Metropolitan Police District served by green buses and Green Line coaches

BETWEEN the boundary of the Metropolitan Police District and the limits of the London Passenger Transport Board's area are some 1,295 square miles served almost entirely by Country Bus services. The full title of this department of London Transport is "Country Buses & Coaches," and in normal times this is responsible for working 214 bus services and 33 coach services, and maintains 30 garages. The section employs a staff of 4,475, excluding the engineering staff. Owing to operating and geographical conditions, and to some extent the type of traffic to be carried, the Country Bus department is organised on lines which provide for a substantial degree of decentralisation. The section is under the direction of the General Manager (Country Buses & Coaches) assisted by the operating superintendent, and the schedules superintendent. A brief account of the Country Buses organisation adopted by London Transport was included in our issue of October 25, 1935, when descriptions were given of four typical new garages in the area north of the Thames; south of the Thames, at Northfleet, is the most recently-opened district headquarters, and this we described in our issue of August 27, 1937. In addition, we published a brief survey of the activities of the department on July 28, 1939. For operating purposes the country area is divided into seven areas, all founded on the inner side approximately by the Metropolitan Police boundary, the territories of which are as follow:—

South-Eastern Area (District office, Northfleet).

Bounded on the north by the Thames and extends to a line just west of West Wickham, Westerham Hill, Westerham, and Hosey Common, and just east of Addiscombe, Addington, Tatsfield, Limpsfield, Crockham Hill, and Edenbridge.

South-Western Area (District office, Reigate).

Adjoining the western boundary of the South Eastern area, and including the territory bounded on the west by a line through Horsham, Dorking, Leatherhead, and Epsom, in which are the populous towns of Croydon, Sutton, and Kingston.

South-Western Area (District office, Windsor).

Includes the area of Guildford, Woking. The eastern boundary is contiguous with the south; Windsor, Weybridge, are included, and the northern boundary may be regarded as along a line south of the Oxford—London road. This line then is a boundary with the Western area.

Western Area (District office, Amersham).

This embraces roughly the old Amersham & District field of operations in a wedge-shaped area bounded by lines through High Wycombe, Gerrards Cross, and Uxbridge; just south of Aylesbury, Berkhamsted, Boxmoor Road; and Boxmoor, Chesham, and Gerrards Cross. The next and adjoining area is the

North-Western Area (District office, Watford).

Control is exercised over the area enclosed by the roads from Aylesbury to Watford and from Luton and St. Albans and westward of Watling Street.

North-Eastern Area (District office, St. Albans).

Adjoins the North-West area on one side, has its eastern boundary just west of the Bishop's Stortford to Epping Road, and north of the Epping to Waltham Cross road, and includes roadways into Enfield in the Metropolitan area. The local services of the board in Luton come within this area.

Eastern Area (District office, Romford).

Has as its portion the Bishop's Stortford to Epping road on the one hand and to the south is bounded by the River Thames. The principal operations of this area are of the coach type, except in the area of Grays, where several bus services of frequent headway are operated to Purfleet and into Romford.

Finally, there is the District Superintendent, London, whose London activities are confined strictly to the checking and control of the coach services as sent up by the other District Superintendents.

On routes operating outside the Metropolitan Police District, a parcels-by-bus service is available. Parcels must

be handed either to an agent or to a conductor and are conveyed at the following rates:—

	s. d.
Not exceeding 7 lb. ...	0 4
14 lb. ...	0 8
21 lb. ...	1 0
28 lb. ...	1 4

The maximum weight carried is 28 lb. In addition, an agent's booking fee of 1d. is payable if a parcel is handed to an agent or addressed to an agent "to be called for."

Return tickets are available on the day of issue only, and they are limited to a few routes. North of the Thames, weekly tickets (12 rides at the cost of 9) are available where the fare is 4d. or over, but these are not issued on the bus and can be obtained only by prior application to a bus garage.

LONDON PASSENGER TRANSPORT BOARD

WARNING

A number of armed guards are being posted on this property

All employees of the Board and others when challenged by these guards must immediately HALT and obey the sentries' instructions

Men passing to and fro on routine duties must obey the instructions of the sentry, however many times they may be HALTED by day or by night

FAILURE TO DO SO MAY RESULT IN TRAGIC ACCIDENTS AS SENTRIES HAVE ORDERS TO FIRE ON ALL PERSONS WHO DO NOT OBEY THEIR INSTRUCTIONS

JUNE 1940

BY ORDER OF THE BOARD

Local time tables are published by London Transport showing all local services, both road and rail, operated by the board, the main-line railway companies, and all other operators. There are six of these in the South-East Area, seven in the South-West, eight in the West, seven in the North-West, and eleven in the North-East.

The full list of country bus garages is as follows, and the garage code is shown in brackets:—

Addlestone	...	...	(WY)	High Wycombe	...	(HE)
Amersham	...	...	(MA)	Hitchin	...	(HT)
Chelsham	...	...	(CH)	Leatherhead	...	(LH)
Crawley	...	...	(CY)	Luton	...	(LS)
Dartford	...	...	(DT)	Northfleet	...	(NF)
Dorking	...	...	(DS)	Reigate	...	(RG)
Dunton Green	...	...	(DG)	Romford	...	(RE)
East Grinstead	...	...	(EG)	St. Albans	...	(SA)
Epping	...	...	(EP)	Staines	...	(ST)
Godstone	...	...	(GD)	Swanley	...	(SJ)
Guildford	...	...	(GF)	Tring	...	(TG)
Hatfield	...	...	(HF)	Tunbridge Wells	...	(TW)
Hemel Hempstead	...	...	(HH)	Watford (Leavesden Road)	...	(WT)
Hertford	...	...	(HG)	Watford (Lower High Street)	...	(WA)
				Watford	...	(WR)

The Tramways of Lille and District

THE Lille district of France, close to the Belgian frontier, is served by two electric tramway systems, both of which introduced new rolling stock shortly before the outbreak of the present war, and we are indebted to a correspondent for the illustrations of this reproduced herewith. The urban services of Lille are maintained by an undertaking known as the T.E.L.B. (Tramways Électriques de Lille et de sa Banlieue) which is constructed as an ordinary street tramway and is of standard (4 ft. 8½ in.) gauge. For many years accommodation was divided into first and second class—formerly not an unusual practice on the Continent—but some difficulties in connection with fare revisions in 1939 resulted in the abolition of the first class accommodation.

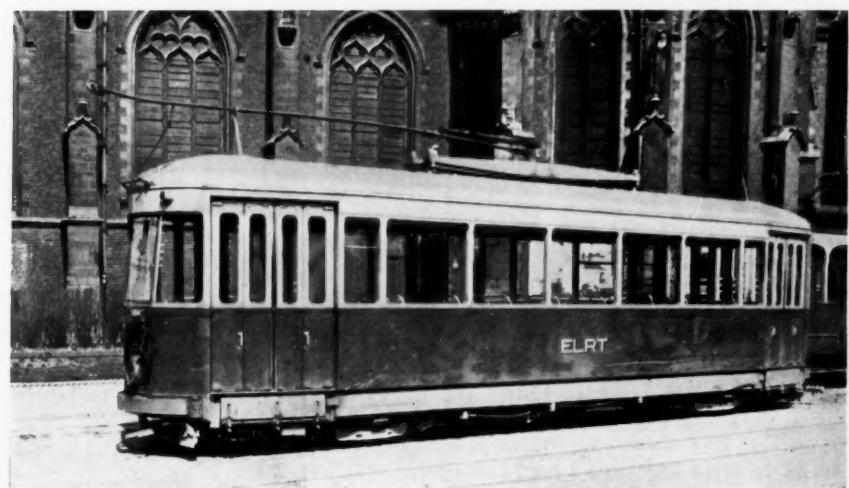
The longer distance services are in the hands of a separate system known as the E.L.R.T. (Électrique Lille-Roubaix-Tourcoing) which is more of a light railway undertaking as its rails are often separate from the road and are laid on sleepers. Shortly before the war the system comprised of 110 km. (68 miles) of metre-gauge route. The rolling stock then consisted of 174 electric cars and 57 trailers, in addition to 13 motorbuses.



Above: A view between Lille and Tourcoing on the E.L.R.T. system (Électrique Lille-Roubaix-Tourcoing). It will be noticed that the trams are on separate sleeper track with a private road on the left for serving the adjacent houses, and the main road on the right



Left: The latest type of tramcar built for the Tramways Électriques de Lille et de sa Banlieue. The T.E.L.B. system is of standard (4 ft. 8½ in.) gauge. It will be noticed that the car has accommodation for first and second class passengers, but during 1939 the first class accommodation was abolished owing to some difficulties in fare revisions



Right: Lightweight single-deck tramcar of the E.L.R.T. system, the most recent type to be introduced by that undertaking

Overseas Notes

Local Traffic in Harbin

During the year 1940, the total number of passengers in Harbin, Manchukuo, carried by tramcar was 36,240,000, and by motorbuses 23,390,000.

Roads in Manchukuo

About 2,790 miles of new bus routes were introduced in Manchukuo during 1940, most of this route distance along new roads. The bus route mileage at the beginning of 1940 was 25,048 miles, and the total length of roads fit for motor traffic was 27,960 miles.

New "Micro-buses" for Buenos Aires

The Buenos Aires Transport Corporation has placed orders in the U.S.A. for 54 "micro-buses," comprising 24 Chevrolet, 20 Ford, and 10 Mack cars. The new vehicles will be of a similar type to the *colectivos* at present running in the city, but with greater seating capacity and offering better comfort for passengers. The specifications stipulate that the tare weight of each vehicle must not exceed one ton, and the carrying capacity must not be less than 1½ tons. The bodies are to be constructed of hard native American woods. The corporation has also been authorised to purchase 200 American buses of an improved type, several of which are already in experimental operation on the suburban lines, where they have given very satisfactory results.

Road Services of Iraqi State Railways

Until the completion of the Baghdad Railway through to Baghdad on July 17, 1940, the links between the Iraqi State Railways and the Turkish State Railways were provided by road motor vehicles. On April 13, 1938, three diesel-engined luxury buses were put into commission to replace five Rolls Royce saloon cars which were previously used to maintain this service but had completed their useful life. These buses had seating accommodation for 20 passengers and a baggage compartment, and completed the run between Kirkuk and Mosul in 4½ hr. Owing to the bad condition of roads between Mosul and Tel-Kotchek, these buses were not used to cover that portion of the journey, which was maintained by hired saloon cars. The total mileage performed by these vehicles during the year ended March 31, 1939, was 33,588 miles at an average cost of 94·7 fils a mile. Excluding railway officials, 1,926 passengers travelled to and from Tel-Kotchek by this service without a single mishap.

To facilitate the conveyance of heavy and bulky materials between Baiji (then the standard-gauge railhead from Baghdad) and Mosul, both for the public as well as the railways, 11 diesel-engined lorries and 16 trailers were placed in commission in May, 1938. These lorries covered 218,740 miles up to the end of March, 1939, at an average cost of 36 fils a mile, including depreciation. Through booking of goods from the Baghdad area and other stations to Mosul was suspended on

October 10, 1938, due to the lorries working between the railhead and Mosul being required for the carriage of materials for the new line.

U.S.A. Truckers on Canadian Railways

The Canadian Government has received an application from International Highways Forwarders, a transport organisation operating in the U.S.A., for permission to work road motor vehicles with goods in bond over Canadian highways. The Revenue Minister, Mr. Gibson, in reporting this to the House of Commons in Ottawa on May 19, said the matter was being considered. At the same time other speakers announced that protests had been received from several districts on the grounds that local transport facilities were adequate.

South African Road Motor Services

The motorcar was introduced into South Africa on January 4, 1897, within two months of Emancipation Day in England. On January 25, 1941, the South African Railways & Harbours Administration was operating road motor services over a total route mileage of 16,965.

The mileage of road motor services operated at the end of the year 1940 was 17,041, compared with 15,913 at the close of 1939. New services and extensions totalled 1,563 miles and the revision of existing services and the withdrawal of non-paying services were responsible for a decrease of 435 miles. The number of passengers carried was 7,309,309, an increase of 1,253,518. Goods traffic increased from 793,504 to 1,020,032 tons, and cream from 2,174,289 gal. to 2,659,902 gal. Revenue increased from £759,367 to £855,522, and expenditure from £755,082 to £897,626, resulting in a loss of £42,104 against a profit of £4,285 in 1939. The vehicle-mileage increased from 10,408,287 to 11,654,968.

New Road Bridge in South Australia

A new £82,000 highway bridge over the Port Adelaide river has recently been completed. Known as the Birkenhead bridge, this structure was designed and supervised by Mr. R. H. Chapman, Chief Engineer for Railways, and is 808 ft. in length. It has a 100-ft. central navigation opening crossed by double-leaf bascule spans with counterweights below deck level, and flanked on the south by one 36-ft. and three 100-ft. deck plate girder spans, and on the north by two 36-ft. and two similar 100-ft. spans. The bridge rests on 458 timber piles carrying concrete piers. The bascule span piers are carried on two groups of six caissons each covering 114 piles to a pier, but the other piers are double cylinders. The abutments and one pier required the use of pneumatic caissons. The decks of the fixed spans are of concrete with a bituminous wearing surface, but those of the bascule spans are of jarrah with a wearing surface of mineral surfaced asphalt bridge planking. The description of this bridge forms the subject of a paper by Mr. J. P. McMahon read before the Institution of Engineers, Australia, published in the journal of the institution.

The Cruden Bay Tramway

A passenger car on the Cruden Bay hotel tramway, L.N.E.R. This interesting little electric line was opened by the Great North of Scotland Railway in June, 1899. The passenger service was withdrawn on October 31, 1932, but until recently the line continued in use for the transport of laundry and other goods to and from the hotel. The tramway has recently been abandoned and the materials are being recovered as scrap. (See our issues of April 4, page 385, and April 18, page 443)



RAILWAY NEWS SECTION

PERSONAL

Mr. George Mills, F.S.S., M.Inst.T., Divisional General Manager, Scottish Area, London & North Eastern Railway, who, as recorded in our July 4 issue, has been appointed Divisional General Manager, Southern Area, was born in Edinburgh, and joined the North British Railway in 1895. After

was made Goods Manager of that area. Mr. Mills was appointed Divisional General Manager, Scottish Area, in June, 1934.

Mr. R. J. M. Inglis, M.Inst.C.E., Engineer, Southern Area, London & North Eastern Railway, who, as recorded in our July 4 issue, has been appointed Divisional General Manager, Scottish

appointed District Engineer, Northern Division, and in 1916 was transferred to the Western Division, with headquarters in Glasgow. In 1919 Mr. Inglis was appointed Deputy Chief Engineer, Railways, at the Ministry of Transport, and, early in 1921, Acting Chief Engineer; at the end of 1921 he returned to his old division in Glasgow. In 1910 he took command of the R.E.



Photo

Mr. George Mills

Appointed Divisional General Manager,
Southern Area, L.N.E.R.

**Mr. R. J. M. Inglis**

Appointed Divisional General Manager,
Scottish Area, L.N.E.R.

11 years in the Audit Accountant's Department, he was appointed Station Auditor, and this position he held for 10 years. In 1916 he became Chief Clerk in the Coaching Department of the Audit Office. In 1920, Mr. Mills was transferred to the Chief Accountant's office as Special Auditor of the Accounts of the Spending Departments, and for the preparation of the N.B.R. Government Compensation Accounts. At the amalgamation, he took charge of the section dealing with rates and statistics in the Chief General Manager's Department, L.N.E.R., and in 1927 became Assistant to the Chief General Manager (Rates & Statistics). In 1929 he became Assistant to the Goods Manager, Southern Scottish Area, and in 1931

Area, joined the North British Railway Engineer's Department as a pupil in 1898, and was taken on the staff in 1900. In 1902, he was appointed Assistant Resident, and in 1903 Resident Engineer on the construction of the High Street goods warehouse, Glasgow, and yards and widenings in connection therewith. In 1905 he returned to the head office in Edinburgh, and was in charge of various large contracts under Mr. C. J. Brown, who was Chief Assistant for New Works at that time. In 1910, when Mr. Brown left the N.B.R. to become Engineer-in-Chief of the Great Northern Railway, Mr. Inglis was appointed to the position of Chief Assistant in charge of the New Works Department, and had the supervision of many contracts. In 1911 he was

Unit of the O.T.C. at Edinburgh University, which had just been formed by Professor Sir T. Hudson Beare, and at the outbreak of war, in 1914, Mr. Inglis, holding the rank of Captain in the Royal Engineers, T.F., immediately volunteered for service. He was appointed Adjutant to the first Training Camp for Officers at Barry under Lord Kitchener's scheme. In October, 1914, he applied for service abroad, but was recalled to the railway service owing to his position as District Engineer on the railway along the East Coast, embracing the Rosyth Naval Base and the docks at Methil and Burntisland. In January, 1929, he was appointed Assistant Engineer (Permanent Way), Southern Area, L.N.E.R.; in 1931 Assistant Engineer (Construction); and

in November, 1934, Assistant Engineer, Southern Area. In December, 1936, Mr. Inglis was appointed Engineer, Southern Area. Mr. Inglis is a Member of the Council of the Institution of Civil Engineers and a Fellow of the Royal Society (Edinburgh); he also holds the rank of Lt.-Colonel in the Engineer & Railway Staff Corps, Royal Engineers, and received the Territorial Decoration for long service in 1938.

Mr. A. H. Peppercorn who, as recorded in our June 20 issue, has been appointed Assistant Chief Mechanical Engineer, L.N.E.R., entered the service of the Great Northern Railway as a premium apprentice under Sir Nigel (then Mr.) Gresley, in the Doncaster locomotive works in 1905. After he had completed his apprenticeship, he gained experience in the running sheds at Colwick, and was later appointed an Assistant to the District Locomotive Superintendent, first at Ardsley and then at Peterborough. During the 1914-1918 war, Mr. Peppercorn served in the C.M.E. Department of the Royal Engineers in France, and on demobilisation was appointed District Locomotive Superintendent at Retford, and later went to Doncaster as Assistant in charge of the wagon shops. He was appointed Assistant to the Carriage & Wagon Superintendent at Doncaster in 1921, and on the amalgamation of the railways in 1923, he became Carriage Works Manager at Doncaster, L.N.E.R. In 1927 he was made Carriage



Mr. A. H. Peppercorn

Appointed Assistant Chief Mechanical Engineer, L.N.E.R.

& Wagon Works Manager at York; in 1933 Assistant Mechanical Engineer, Stratford; and in 1937 Locomotive Running Superintendent, Southern Area. Mr. Peppercorn succeeded Mr. E. Thompson as Mechanical

Engineer, North Eastern Area, in June, 1938, and in the position Mr. Peppercorn now assumes as Assistant Chief Mechanical Engineer, he is responsible for the work of the department in the temporary absence of Mr. Thompson. Mr. Peppercorn will also act as Mechanical Engineer, Doncaster, with control of the carriage & wagon works at York and supervision of all "outdoor" carriage and wagon work on the Great Northern section and on the Great Central section between Sheffield and London.

Mr. William Allen, who, as announced in our June 20 issue, has been appointed Manager of Todmorden Joint Transport Undertaking, is 38 years of age and was born at Hellifield, Yorkshire. He went to live in Liverpool at an early age and was educated at St. Michael's School and Toxteth Technical Institute, Liverpool. Mr. Allen served an apprenticeship with an engineering firm and continued his articles with Mr. J. Fairburn, General Engineer, Burnley. From 1921 to 1925 he served with the Royal Engineers and was in charge of the lighting and pumping installations driven by diesel and petrol engines, and from 1925 to 1927 was a motor mechanic with Oswald Tillotson Limited of

Burnley. From 1927 to 1933 Mr. Allen was on the maintenance staff of the Burnley Corporation Tramways and when that system was merged into the Burnley, Colne, & Nelson Joint Omnibus Undertaking in 1933 he was promoted



Mr. William Allen

Appointed Manager,
Todmorden Joint Transport Undertaking



Mr. C. J. Heath

Appointed Costs Officer,
London Transport



The late Mr. Harvey Riach

District Engineer, Perth, L.M.S.R.,
1927-1941

Assistant Engineer and held this position until 1935 when he went to Rochdale as Works Manager to the Passenger Transport Department. While at Burnley he was lecturer in motor engineering at the Municipal College from 1930 to 1934. He was elected an Associate Member of the Institution of Automobile Engineers in 1937. Mr. Allen has read a paper before the institution on "Some Notes on an Extended Test of Creosote Mixture in Compression-Ignition Engines." Rochdale Corporation was a pioneer in the use of alternative fuel and Mr. Allen was largely responsible for the success which has attended its use at Rochdale.

Mr. C. J. Heath who, on May 22, was made an officer and appointed Costs Officer, London Passenger Transport Board, in succession to the late Mr. F. J. Geary, entered the service of the Metropolitan District Railway in 1899 and was appointed by the General Manager, Mr. Alfred Powell, to a position in the Traffic Department. After six months he was transferred to the General Manager's Office. Two years later he was selected by the then Accountant, Mr. W. J. Whittam, to fill a position in his personal office. In 1911 Mr. Heath was transferred to the Pay-rolls section of the District Railway and a year later was appointed as Clerk-in-Charge of the whole of the railway pay-rolls, which covered the staffs of both the District Railway and the tube railways. He was responsible also for the pay-roll of the administrative staff, and during the difficult period of the last war carried on successfully in this position with a depleted staff. In 1920 Mr. Heath became associated with the Audit Officer and in 1924 went to the reorganised Audit Office as Senior Assistant to the Audit Officer (Mr. G. Eland). In this capacity he acquired a wide knowledge of the organisation. During the last few years Mr. Heath has held an Administrative Assistant's post.

We regret to record the death on June 23 of Mr. Harvey Riach, District Engineer, Perth, London Midland & Scottish Railway. Mr. Riach, who was in his 61st year, served an apprenticeship as a civil engineer in Inverness, and in 1899 joined the Caledonian Railway in the office of the Engineer-in-Chief. He served first as Assistant Resident Engineer and later as Resident Engineer, and in 1917 was appointed Deputy to the Chief Assistant Engineer. After the amalgamation of the railways in 1923, he was made Assistant in the Maintenance of Way & Works Department on the Northern Division of the L.M.S.R. Mr. Riach was appointed District Engineer at Perth in January, 1927. Up to the time of his death he was a keen ambulance worker.

Mr. R. Falshaw Morkill, Joint Signal Engineer, London Passenger Transport Board, has been elected by the council

as Vice-President of the Institution of Railway Signal Engineers in succession to Mr. H. W. Moore, Assistant Mechanical & Electrical Engineer & Signal Engineer (Northern Division), L.M.S.R., who has held office since February, 1939, and who has now resigned.

INSTITUTE OF TRANSPORT COUNCIL, 1941-42

No nominations to fill any of the vacancies on the council which will arise at September 30, 1941, having been received from corporate members by the prescribed date, the President has declared, in pursuance of the bye-laws of the institute, the ten undesignated to have been duly elected as ordinary members of the council as from October 1, 1941:—

MEMBERS

Mr. R. Davidson, General Manager, Leeds & Liverpool Canal Company.

Mr. J. Elliot, Deputy General Manager, Southern Railway.

Mr. W. C. Leslie-Carter, Traffic Manager & Deputy General Manager, Carter Paterson & Co., Ltd.

Mr. F. Lydall, Partner, Messrs. Merz & McLellan.

Mr. J. B. Osler, Chief Engineer, Carter Paterson & Co., Ltd.

Mr. P. R. Privett, Director & Secretary, General Steam Navigation Co., Ltd.

Mr. E. W. Rostern, Assistant Superintendent (Western Section), L.N.E.R., Southern Area.

Mr. C. H. Sutherland, Assistant Accountant, L.M.S.R.

Mr. H. E. O. Wheeler, Superintendent of Operation, Southern Railway.

ASSOCIATE MEMBER

Mr. H. W. Elliott, Controller of Road Transport, Ministry of Supply.

The London Gazette of June 24, 1941, announces the appointment of Lt.-Colonel Gilbert Savil Szlumper, C.B.E., T.D., as a Knight of the Order of St. John of Jerusalem.

MINISTRY OF SUPPLY

Mr. S. J. Jackson to be Director of Storage & Transportation, to represent the Department of the Controller-General of Transportation of the Ministry of Supply in North America.

Mr. William E. Rootes, Chairman of Rootes Securities Limited, to be Deputy Chairman of the Supply Council. The Minister, Lord Beaverbrook, is Chairman and Mr. Rootes will act in his absence.

Mr. Rootes is President of the Motor Export Group and also Chairman of the Motor Vehicle Transport Maintenance Advisory Committee set up by the Ministry of Supply and the Ministry of Transport.

Mr. Oliver Lucas, Deputy Chairman & Joint Managing Director of Joseph Lucas Limited, to be Adviser to the Minister on Development and Design, and a Member of the Supply Council.

Colonel the Rt. Hon. J. J. Llewellyn, C.B.E., M.C., M.P., formerly Parliamentary Secretary to the Ministry of Transport, and the Rt. Hon. Sir Arthur Salter, K.C.B., M.P., formerly Parliamentary Secretary to the Ministry of Shipping, have been appointed Joint Parliamentary Secretaries to the Ministry of War Transport.

Sir John Rowland, formerly Chief Commissioner, Burma Railways, has been appointed Director of Construction of the Burma-Yunnan Railway, which is to link up the railway systems of Burma and China.

AUSTRALIAN CABINET

Mr. Menzies, the Australian Prime Minister, has added six new ministries to his cabinet, among them one for Transport. Mr. H. L. Anthony has been appointed Minister of Transport.

Mr. A. G. Hunt has been elected Chairman of the Antofagasta (Chili) & Bolivia Railway Company in succession to the late Mr. A. W. Bolden.

Mr. Robert Holmes has been elected a Director of the Nitrate Railways Limited in place of Sir David Wilson-Barker, whose death we recorded in our July 4 issue.

The King held an Investiture at Buckingham Palace on June 26, when among other recipients of Honours, the Accolade was conferred on Mr. Charles Hambro, Chairman of the Great Western Railway Company.

ILLINOIS CENTRAL RAILROAD

Dr. W. W. Leake of New Orleans has been appointed Chief Surgeon of the Illinois Central Railroad, with headquarters at Chicago. He will have charge of all medical service for Illinois Central employees, including the operation of Illinois Central hospitals at Chicago, New Orleans, and Paducah, Ky. Dr. Leake has succeeded Dr. Dowdall who has retired on account of ill-health after 30 years of service.

Major Gilbert Dennison, Mr. Hubert Moses Medland, and Mr. Hartley William Shawcross, K.C., have been appointed additional Deputy Regional Commissioners for Civil Defence. They will act, respectively, in the Midland, South-Western, and South-Eastern Civil Defence regions. It is intended to make similar appointments in a number of other regions in view of the increased amount of work falling on regional commissioners in respect of fire service, fire prevention, and the co-ordination of work before and after heavy air raids.

Sir Herbert Nigel Gresley, O.B.E., D.Sc., Chief Mechanical Engineer, London & North Eastern Railway, from 1923 to 1941, whose death we recorded in our April 11 issue, has left estate valued at £27,317 (net £26,243).

TRANSPORT SERVICES AND THE WAR—97

New L.M.S.R. suburban timetable book, and July main line changes—Lost time recovery on the G.W.R.—Rules for travellers in Germany—Swiss transit

For the second time since the beginning of the war a change has been made in the format of the L.M.S.R. suburban timetable book. The issue of May 6, 1940, was an improvement on its predecessors, and that of May 5, 1941, embodies considerable further improvements. The size has



R.E.C. poster announcement

been increased from 7 in. x 5½ in. to 8½ in. x 5½ in., and the paper cover of the former has given place to a more attractive red cover of stiffer material in the latest edition. Instead of the tabulation of the trains with the hour figure at the head of each column, and minutes only in the column, the times throughout are set out in full, which makes for much greater ease of reading, though it has increased the number of pages from 32 to 52. The Rickmansworth and St. Albans branch trains, as well as the main line from Watford to Tring and Bletchley, have been brought into the main table from Euston and Broad Street to Watford, which simplifies the search for connections. Similarly the electric service between Willesden Junction (High Level) and Earl's Court has been brought into the Broad Street and Richmond table.

L.M.S.R. July Timetables

Among numerous alterations to L.M.S.R. trains operative from July 1, the 9.5 a.m. restaurant car express from

St. Pancras to Bradford ceases to run beyond Sheffield; the 5.0 p.m. from Bristol to Leeds terminates at Derby; the 11.15 a.m. from Leeds to Bristol is discontinued between Leeds and Sheffield, and the 12.29 p.m. from Sheffield becomes the continuation of the 10.20 a.m. from York; the 8.10 a.m. from Sheffield to Worcester begins its journey at Derby at 9.17 a.m.; the 11 a.m. expresses from Edinburgh (Princes Street) to Glasgow and Glasgow (Central) to Edinburgh are cancelled. In addition, roughly 110 local trains on weekdays and 100 on Saturdays, over all parts of the L.M.S.R. system, are withdrawn. The 7.20 a.m. from Manchester to St. Pancras, in pursuance of the policy of stopping up expresses in the Outer London area, calls daily at St. Albans at 11.56 a.m. Sleeping accommodation between Glasgow and Manchester (as well as between Glasgow and Liverpool) is now provided daily on the 11.5 p.m. from Glasgow (Central), as well as on the 1.10 a.m. from Manchester (Exchange) to Glasgow. Several up express trains on the Western Division have had their times eased, with slightly later arrivals into Euston.

Recovering Lost Time on the G.W.R.

From April 22 the Great Western Railway relaxed the maximum speed limit over its main lines from 60 to 75 m.p.h., to enable express trains to regain lost time when running late, and issued instructions to its drivers that they must run to certain curtailed point-to-point timings when necessary for the recovery of lost time. These revised timings, which are printed in the working timetables operative from May 5, are uniform over each section for all types of locomotives and all loads, the assumption being that they are within the capacity of the locomotives in all normal conditions. As typical of the point-to-point revisions, the start-to-stop timing between Paddington and Reading (36.0 miles), normally 45 to 47 min., must be cut to 41 min. if a train is running late; Reading-Didcot (17.0 miles), normally 22-24 min., to 21 min.; Reading-Oxford (27.5 miles), 40 min., to 33 min.; Didcot-Swindon (24.3 miles), 34-35 min., to 28 min.; Swindon-Chippenham (16.7 miles), 22-25 min., to 20 min.; and so on. The cumulative effect of these cuts, over longer distances, is as follows:—

From	Distance	Normal		Revised		Recovery margin
		Schedule	Average speed	Schedule	Average speed	
Paddington to Exeter	miles	min.	m.p.h.	min.	m.p.h.	min.
Exeter to Paddington	173.5	210	49.6	193	53.9	17
Paddington to Taunton	173.5	215	48.4	191	54.5	24
Paddington to Newport	142.9	180	47.6	159	53.9	21
Paddington to Bath	133.4	165	48.5	151	53.0	14
Reading to Newport	107.9	130	49.8	118	54.9	12
Reading to Newmarket	97.4	121	48.3	112	52.2	9
Leamington to Paddington	87.3	118	44.4	107	49.0	11
Swindon to Paddington	77.3	95	48.8	86	53.9	9
Reading to Bath	71.9	88	49.0	79	54.6	9
Paddington to Banbury	67.5	90	45.0	83	48.8	7
Banbury to Paddington	67.5	95	42.6	83	48.8	12
Reading to Chippenham	58.0	72	48.3	65	53.5	7
Didcot to Paddington	53.1	70	45.5	60	53.1	10
Chippenham to Didcot	40.9	53	46.5	47	52.2	6

The aggregate recovery margin in the extreme right-hand column represents the total gain if each of the point-to-point margins is used to the full, and on such a lengthy non-stop run as that of the Cornish Riviera Limited from Exeter to Paddington may amount to as much as 24 min. It will also be seen that over the more easily graded sections of line, throughout average speeds of from 53 to 55 m.p.h. are required of drivers when their trains are behind time; on the Birmingham route, with its heavier grades and more numerous

service slacks, the required average, when making up time, drops to a little under 50 m.p.h.

Travel Expenses Tax Concession

The Chancellor of the Exchequer has decided to make an income-tax concession to every wage earner whose travelling expenditure has been increased because of his change of work place or residence owing to the war. If it is shown that a worker's place of work or residence has changed through circumstances connected with the war, and that in consequence he is obliged to meet from his wages additional expense in travelling between his home and his work, the additional expense so incurred by him in the half year, up to a maximum of £5, shall be deducted from the wages to be assessed for the half year.

Mersey Docks and Harbour Board Charges Raised

The Mersey Docks & Harbour Board, under the powers of the Mersey Docks (Increase of Charges) Order, 1941, which was made by the Minister of War Transport on June 24, has directed that certain increases should be made in charges effective from July 2. The dock tonnage and wharf rates on the vessels and dock rates and town dues of goods, as set out in tables 1, 3, and 5 of the board's book of rates and dues on vessels and goods, are raised by 60 per cent. The reduction of 20 per cent. allowed on harbour rates and vessels as set out in table 2 of the board's rate book is discontinued, and in its place an increase of 15 per cent. is made effective.

Shelterers at London Tube Stations

Since double summer time was introduced, some confusion has been caused at London tube station shelters by the late arrival of regular shelterers and by the infrequent attendance of others. On arriving late at night or on returning to the station after an absence of some days, they have sometimes found their places occupied by casual shelterers. To avoid misunderstanding and unfairness, the Westminster, Paddington, and Holborn Councils have ruled that holders of reserved tickets will forfeit their places for the night if they are not in position by 11 p.m. Shelterers who cannot arrive by that time because of their being engaged on work of national importance may arrange with the shelter wardens to keep their places open.

Cheap Travel for Holidays with Evacuees

Applications may now be made for the special vouchers for eight-day railway tickets at reduced fares which, as announced by the Parliamentary Secretary to the Ministry of War Transport on June 26 (see page 47), are to be issued for the benefit of those who wish to spend their week's summer holiday with members of their families who have been evacuated. The railway companies have agreed that, until the end of September, one ticket, valid for eight days, including the day of issue, may be obtained by any person who is entitled to a voucher under the existing arrangements for cheap travel to visit evacuated relatives. Applicants for the special voucher must apply to the issuing centre serving the district in which they live, and will be required to produce written evidence that they have secured accommodation for the week at their destination. The applications should be made at least nine days before the date of the intended journey.

Staggered Hours for Workers

The first comprehensive scheme for staggering working hours at industrial establishments in the London area has been prepared by the London & South Eastern Regional Board on which sit representatives of all Government departments concerned with armament production, employers and employees, trade unions, and transport undertakings. The object of the plan is to avoid excessive peaks of traffic and to ensure less delay and more comfortable travel for workers. A study of the problem revealed that in one factory area the number of workers arriving in one half-hour was 8,815; in the previous half-hour, 22; and in the subsequent half-hour, 1,200. Since the beginning of the war some 700 fac-

tories have adopted staggered hours, and the present scheme is based on the experience that has been gained. In the Metropolitan Area 32 transport districts have been established, each made up of a number of factories with a group leader whose duties are to encourage and to arrange consultation with the firms in the group trade unions and transport undertakings. The staggering of working hours is designed to ensure uniformity of workers' traffic to and from the area at intervals of 15 minutes. This preliminary work is in progress and it is intended to complete the arrangements in time to enable the workers to have the full benefit of it in the coming winter; it is estimated that about one million persons will be affected. It is believed that transport committees in Liverpool, Manchester, Leeds, and other large cities may follow London in arranging for factory hours to be staggered on a large scale.

Germans Bar Women from Sleeping Cars

The increased demand for sleeping-car berths in Germany recently led to a complete ban on the sale of berths to women and children. Subsequently the ban was lifted for certain express trains, but the restrictions are understood to remain on trains operating in or out of Berlin; it is believed that all such berths are reserved for "necessary" (non-recreational) travel of army officers and other officials.

New Rules for Travellers in Germany

Seven new rules for railway travellers in Germany have been officially drawn up and given wide publicity in the press, according to a special correspondent of *The Times*. It is explained to the public that a drastic curtailment of passenger services is necessary because the war goods traffic is more important, and that this curtailment calls for the adoption of a new technique of travel which will conform to rules evolved from practical experience. The purpose of the rules is to make conditions less intolerable, to prevent passengers from annoying one another, and to help in preserving good humour, without which nowadays, it is explained, travel is insufferable. The rules are as follow:—

- (1) Do not travel unless you must; if you do, don't complain.
- (2) Limit your luggage to the barest necessities, compressed into the minimum dimensions, requiring the least possible carriage space.
- (3) Say good-bye outside the barrier, so as to avoid crowding the platforms.
- (4) Inside the compartment passengers must form themselves into a team headed by the person who has been there longest, and who is authorised to settle differences about seating, to decide about the use of luggage racks, to order the passengers to sit as tightly wedged as possible so as to squeeze in one more than the seats normally hold, to take the initiative frequently during the journey in suggesting, tactfully and politely, but firmly, that sitters should change place with those who are standing.
- (5) Cultivate the team spirit against inconsiderate fighting for seats and against elbow-diggers; if conciliatory words are without effect, employ sharpness, and finally call the guard.
- (6) Do not bother guards and station officials needlessly; they are always over-worked.
- (7) Observe the same rules on the journey home.

The German State Railways in 1940

During the calendar year 1940 the Reichsbahn increased its gross revenue by 30.8 per cent. to RM. 7,600,000,000 (from 5,800,000,000 in 1939) as recorded in THE RAILWAY GAZETTE of May 30, at page 610. Further details which have now come to hand show that revenue from passenger and parcels traffic rose by 43.8 per cent. to RM. 2,400,000,000, while goods traffic rose by 25.2 per cent. to RM. 4,700,000,000. The increase in revenue was due to: (a) the incorporation in the German State Railway network of lines in the Eastern (completely-absorbed Polish) Provinces, in Eupen, Malmedy, and Moresnet, in Alsace and Lorraine, and in Luxembourg; (b) the absorption by the Reichsbahn of some private railways; (c) increase in traffic; and (d) the abolition of a great number of special cheap tariffs which had formerly been granted to industry. It is impossible from the published accounts to ascertain the respective effects on the total Reichsbahn revenue of each separate cause. The rise of revenue from passenger traffic is said by the *Münchener Neueste Nachrichten* of June 6 to have resulted from the large-scale troop movements during the year, the increase in numbers of foreign workers in Germany, and the choice by passengers of more higher-class train accommodation. Reichsbahn expenditure is said to have risen by 32.7 per cent. to RM. 7,300,000,000 during 1940, but this figure is stated to have included a large allocation to a renewal fund, of which only part was spent for that purpose in 1940. Had

it not been for the exemption of the Reichsbahn from the Profit Stop Decree, the transfer of profits to the Reich would certainly have exceeded the sum of RM. 220,000,000 actually transferred in 1940, according to the *Frankfurter Zeitung* of June 7. The Reichsbahn salaries and wages total rose from RM. 3,700,000,000 in 1939 to RM. 4,300,000,000 in 1940, and payments to the Reich on account of the transport tax (*Beförderungssteuer*) increased from RM. 535,000,000 in 1939 to RM. 620,000,000.

Private Railway and Tramway Companies in Germany

The possible re-introduction of the transport tax in Germany and its effect on private railway companies and tramway companies was discussed in an article published in the *Berliner Börsen-Zeitung* for May 29. The writer said that there were between 60 and 70 private German railway companies and several hundreds of tramway companies, and that the small profits which these concerns have made recently will probably be converted into losses by the re-introduction of the transport tax. It is said that the private railways carry some 5 per cent. of the total German passenger transport and 9 per cent. of the goods traffic. In recent years they have benefited from the limitation of road transport competition and from increased local traffic due to the decentralisation of industrial production. These higher revenues, however, have been offset partly by the greater wear and tear of rolling stock, and the article to which we refer recommends the authorities to bear in mind the effects on these private undertakings of the re-introduction of a tax which he estimates would curtail their current gross revenues by between 6 to 16 per cent. According to the *Deutsche Allgemeine Zeitung* for May 27, the A.G. für Verkehrswesen of Berlin reports that in 1940 total traffic was again higher than in the previous year but that, owing to the rise in expenditure and taxation, total net profits declined slightly.

Signalling in Bohemia & Moravia

As announced at page 712 of our June 27 issue, the signalling on the Czech railway system is being brought into line with German State Railway standards. Until the end of the last war these lines were part of the Austro-Hungarian system, where the signalling was of rather simpler design than in Germany, the wire breakage and other safety requirements being less stringent. The apparatus was of three principal designs, due to the signal works of the then Südbahn and the firms of Götz and Siemens & Halske (Vienna works). Some modern Götz type apparatus was described in our issue for May 17, 1935, page 983. A great deal of interesting electrical apparatus was brought out in old Austro-Hungarian days, as has been recorded by the able but little-known signalling historian Kohlfürst, and the working on the railways of the Dual Monarchy presented points of great interest. The white light was used for "all right," but was replaced by green in post-war Austria at the end of 1934. On the electrification of the Vienna Metropolitan line, modern power and automatic signalling was put in. When the Germans entered the Sudetenland in 1938 they found many signal boxes with their old German diagrams and instructions dating from before the formation of Czechoslovakia.

New Uniforms for German Railwaymen

The proverbial German love of the uniform has scored over the equally serious problem of textile shortage with the recent introduction by the Reichsbahn of new uniforms for the staff in occupied countries and new dress uniforms for the staff in the home country. In the official Order the reasons for this step in wartime are given as the demands of the "New Order" and need for establishing the "prestige" of the German in occupied territories, where Germans have been installed in key posts on all railways. In the same Order it is also stated, somewhat apologetically, that as railwaymen are still civilians, the military battle grey colour was not chosen. The new uniforms are prescribed for all grades, the higher officials and clerical staff wearing dress uniform only on special occasions. Blue jacket and black trousers is the general colour scheme adopted, with gold,

silver, and red trimmings. The buttoned-to-the-neck style of jacket and coat are replaced by lapelled garments, with which collar and tie must be worn. For staff in occupied territories in hot climates, white caps and jackets are provided. A great variety of shoulder pieces, badges on cap, lapel, and sleeve, armlets with the swastika a prominent feature, as well as a belt with knife or revolver, have been designed. The weapons are worn only on special occasions, and at all times in some of the occupied territories where the population is "unsympathetic and dangerous." The measures are said to have been taken on the personal order of the Führer. Many rules and regulations accompany the Order. Some of them are: Stern and soldierly bearing, when in uniform, must be adopted both on and off duty; only official decorations and the Nazi party badge may be worn; the prescribed salute must be given only to the Führer, to the national flag, and to all superior officers, it must be accompanied by *Heil mein Führer* when meeting Hitler, by *Heil Hitler* in all other cases; when interviewed by a superior, the cap must be taken off and held in the left hand down by the side; when two of different rank meet, the superior must not take off his gloves; railwaymen in uniform must not appear at fancy dress functions, nor on any account visit "establishments of doubtful standing."

Through Transport to Switzerland

To reduce existing transport difficulties to and from Switzerland, a transport office is being established at Lisbon by the Swiss Government. This organisation headed by a Federal Commissioner, will endeavour to facilitate and simplify transit shipments. The Commissioner will have charge of the distribution of available transport facilities and will conduct negotiations to this effect with foreign authorities.

American Explosives Moved with No Fatalities

For the fourteenth consecutive year, the railways of Canada and the United States in 1940 transported without a fatality approximately 600,000,000 lb. of high explosives, which includes among other things dynamite, black and smokeless powder, explosive ammunition, and blasting caps. Only three minor accidents in which one person was injured took place in 1940 in connection with the transport by rail of explosives in both Canada and the United States. Two of the accidents were slight explosions resulting from the handling of toy torpedoes. The third accident was due to a fire of unknown origin in a goods depot, which resulted in the explosion of 1,000 blasting caps; 500 lb. of dynamite, awaiting removal by the consignee, were burned but did not explode.

Remarkable Railway Construction Feat in U.S.A.

On January 26 construction work was begun on a 20-mile military railway from Newburg, Mo., to Fort Leonard Wood, through the Ozark mountains. This work involved some 1,500,000 cu. yd. of rock and earth excavation, the building of two major bridges over the Big and Little Piney rivers, and 15 other bridges, also 18 miles of ballasting as well as platelaying over the whole length. In spite of these formidable tasks, the line was completed and an inauguration train ran over it on April 19, the time taken for construction being only 83 days. Major-General G. V. Strong, commanding the 7th Corps Area, was among those who travelled by the first train, but the work was carried out by the Klinger-Neumann-Western-Lytte Company, civilian contractor, according to our American contemporary, *Engineering News-Record*.

South African Airways

The skeleton service introduced in 1939 as a result of the transfer of aircraft to the Defence Department was maintained up to May 24, 1940, when the airways' organisation became entirely a military unit and all commercial services were suspended. This position continued until December 17, 1940, when commercial flights were introduced by the provision of two services between the Union and Portuguese West Africa, and the Union and Uganda. It is hoped to extend these services considerably in the near future.

Staff and Labour Matters

Shunters in Hump and Gravitation Yards

Under an award dated July 1, by the Chairman of the Railway Staff National Tribunal, the wages of certain shunters employed in hump and gravitation yards are to be increased. The award arises out of a claim by the National Union of Railwaymen that the rates of pay for each class of shunters employed at hump or gravitation yards and sidings shall be increased by 5s. a week; also, such men shall be placed on a standard working day of six hours. The claim was presented to the Chairman at a hearing on June 4, 1941, at which Mr. John Marchbank represented the National Union of Railwaymen, and Mr. G. L. Derbyshire represented the railway companies.

There are 83 hump or gravitation yards, of which 55 were in existence in 1920. The number of shunters employed is 1,517.

In support of the claim it was contended by the N.U.R.:

(i) that since the National Agreement of March, 1920, there have been considerable developments in hump and gravitation shunting;

(ii) that because of such developments the rates of pay and conditions of shunters employed in hump or gravitation yards should be considered as a question apart from the provisions of the National Agreement with regard to the classification of shunters;

(iii) that in the modernised yards special features have been introduced, such as hydraulic brakes or retarders, which have the effect of increasing the number of wagons dealt with during shunting operations;

(iv) that a comparison between the methods of working at the ordinary level yard and the hump or gravitation yard indicates that the duties of the shunters in the latter yard are more arduous;

(v) that the difficulties of shunting in bad weather are more pronounced in hump or gravitation yards.

Upon behalf of the railway companies it was contended:

(i) that the developments in hump or gravitation shunting are not considerable or widespread, and that such developments affect only four yards employing 128 shunters out of a total of 1,517 employed at hump or gravitation yards generally;

(ii) that apart from the four exceptions, the whole of the hump or gravitation yards are being worked in substantially the same way as at the time of the National Agreement;

(iii) that at the four yards where altered methods have been introduced the alterations have been accompanied by commensurate improvements in the pay of some of the men concerned and by a lightening of the work of others;

(iv) that just in the same way as hump or gravitation yards generally were not regarded as justifying higher payments at the time of the National Agreement, they do not justify special treatment to-day;

(v) that the work of shunting over a hump or by gravitation is not more arduous and does not justify higher pay than that of shunting in a flat yard.

Subsequently to the hearing the Chairman of the tribunal visited, with representatives of the companies and the National Union of Railwaymen, certain hump, gravitation, and flat yards, and observed the work in progress. The award states that after carefully considering the evidence and submissions of the parties and having observed the work in progress, the Chairman decides:

(1) that the claim for a standard working day of six hours is not established;

(2) (a) that class 3 shunters employed in hump or gravitation yards shall, whilst so employed, receive, in addition to the pay for their class, a special allowance of 3s. per week;

(b) that this award shall operate as from the beginning of the first pay period following July 1;

(c) that nothing in this award shall be taken as affecting shunters employed at Edge Hill or Wath-on-Dearne, whose position is covered by special agreements made between the companies concerned and the National Union of Railwaymen.

Locomotive Boiler Explosion

In the course of his annual report for 1940, with which we dealt in our issue of June 27 (page 695), Sir Alan Mount gave details of the unusual locomotive boiler explosion which occurred on the L.M.S.R. between Cleghorn and Carstairs on September 10, 1940. A passed fireman and a passed cleaner (qualified to act as driver and fireman respectively) were instructed at short notice to take charge of a Glasgow—London passenger train, the booked crew not being available owing to delays caused by enemy action. They reached their train about three minutes before starting time and found that the engine, one of the streamlined Pacific type, was already prepared with a good body of fire. It was in good order, and the weight of the train was nearly 100 tons below the maximum permissible of 570 tons. The weather was fine and the rail dry. A locomotive inspector, who happened to be proceeding to Motherwell, travelled on the footplate to that station (13 miles), and the journey thus far was uneventful, steam and water being maintained without difficulty over steeply rising gradient for the last five miles. The inspector observed, however, that the fireman was inclined to fire lightly and commented upon it to the driver. Evidently the fire was thin on reaching Motherwell, and deteriorated still more as the result of the engine slipping on leaving that station. There was then little chance of recovery, as severe gradients (averaging about 1 in 120) thence had to be surmounted for 11 miles to the summit.

Some 6½ miles beyond Motherwell the train was brought to a stand by the automatic application of the vacuum brake, due to shortage of steam. After being stationary for about three minutes, the driver proceeded and, in spite of denials on his part, it is clear

that he experienced further trouble; in his anxiety to maintain sufficient steam to reach the summit (two opposite slopes of 1 in 190), he allowed the water level to fall unduly. The sharp reversal of gradient at the summit affected the water level at the back of the boiler still further, and, two miles beyond, the crown of the firebox collapsed as the result of shortage of water. The driver and fireman were severely scalded and the latter succumbed to his injuries later in the day. The passengers were unharmed. Discolouration extended over the whole of the firebox crown and down the tube plate and sides, indicating that the water level had fallen some 8 in. below the highest point of the crown. Both plugs had fused; but it appeared that, having gained the summit and finding that he was able to work the injector, the driver decided to allow the engine to run on, using a minimum of steam, in an attempt to reach Carstairs some five miles distant, where he knew assistance would be available. Clearly he did not realise the length of time that the water level must have been below the higher parts of the crown of the firebox, Sir Alan Mount concludes, and attributes the accident to inexperience.

Contracts & Tenders

The Bengal-Nagpur Railway has placed the following contracts:

Superheater elements: Superheater Co. Ltd.

Brass wood screws: Guest, Keen & Nettlefolds Limited.

Guillotine shearing machine: John Rhodes & Sons Ltd.

Spindle grinding machine: Church Machine Tool Co. Ltd.

The Highland Transport Co. Ltd. has placed an order with the Associated Equipment Co. Ltd. for two Regal passenger vehicles. The L.M.S.R. owns £14,767 ordinary shares in the Highland Transport Co. Ltd.

The Portuguese Railways have ordered 19 third class passenger coaches from an American manufacturer.

As was pointed out in the RAILWAY GAZETTE of June 13 at page 667, there is at the present time an urgent demand for railway sleepers and crossing timbers. The Railway Executive Committee has now announced that special wartime specifications are being issued by the Railway Executive Stores Committee for home-grown sleepers and crossing timbers. The home growers, owners, and merchants are asked to co-operate by offering the maximum quantities possible, and arrangements have been made for immediate delivery instructions for all quantities accepted. Railway sleepers should measure 8 ft. 6 in. by 10 in. by 5 in., but sleepers with not less than 7-in. face are acceptable; crossing timbers measure up to 16 ft. long. For every mile of railway line 2,112 sleepers are needed.

Notes and News

International Ethiopian Railway Trust & Construction Co. Ltd.—According to a notice in *The London Gazette* the name of this company will be struck off the register of companies at the expiration of three months from June 27, 1941, unless cause is shown to the contrary.

New Russian Railway Opened.—It is reported from Alma-Ata (Kazakhstan) that a new railway from Neldy to Jezkazgan has recently been opened. This 260-mile line connects the rich Jezkazgan copper-producing area with the main railway system of the U.S.S.R., and is expected to play an important part in the economic development of the area traversed.

Canadian Pacific Railway.—Gross earnings for May were \$19,277,000 an increase of \$5,765,000, and expenses were \$15,095,000, or \$4,048,000 higher. Net earnings at \$4,182,000 were \$1,717,000 more than for May, 1940. For the first five months of 1941 gross earnings were \$81,345,000, an increase of \$20,152,000, and the net earnings of \$15,851,000 were \$6,138,000 greater than for the first five months of 1940.

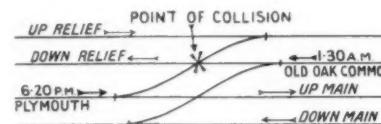
Great Southern Railways (Eire).—For the 24th week of 1941 the Great Southern Railways Company reports passenger receipts of £42,089 (against £37,700), and goods receipts of £44,537 (against £43,187), making a total of £86,626 (against £80,887) for the corresponding period of the previous year. The aggregate receipts to date are passenger £876,385 (against £750,305), goods £1,194,107 (against £1,068,343), making a total of £2,070,492 (against £1,818,648).

Costa Rica Railway Co. Ltd.—This company has acquired the whole of the share capital of the Northern Railway Company of Costa Rica as from July 1, and from that date the railway lines of both companies are being operated as one system. Under an agreement of 1905 the Costa Rica Railway was worked by the Northern Railway (a wholly-owned subsidiary of the United Fruit Company of the U.S.A.) and the northern company guaranteed payment to the Costa Rica Railway of £137,500 annually. In July, 1940, the northern company defaulted by paying only £71,073.

S.R. Locomotive named "Union Castle."—On July 4 Mr. Robertson F. Gibb, Director of the Union Castle Mail Steamship Co. Ltd., accompanied by Mr. R. Holland-Martin, Chairman of the Southern Railway Company, and Mr. E. J. Missenden, General Manager, named the second of the Southern Railway "Merchant Navy" class mixed traffic locomotives *Union Castle*. Lord Leathers, Minister of War Transport, wrote expressing his regret at his inability to be present at the ceremony; the Ministry was represented by Sir Cyril Hurcomb, Director General &

Accounting Officer, and by Mr. R. H. Hill, Deputy Director General (Inland Transport). There were present a number of representatives of the four main-line railway companies and of the Union Castle Line. Mr. Holland-Martin referred to the long and strong links between the Southern Railway Company and the Union Castle Line through the port of Southampton, and he hoped that with the return of peace the long and happy association would be renewed and maintained. Mr. Robertson Gibb paid tribute to the skill of the designers of the "Merchant Navy" class and expressed his gratification at the decision of the Southern Railway Company to name the engines of locomotives of that class after shipping lines engaged in the mercantile marine. Other engines of this class are to be named after shipping lines and each will bear a plate showing the house flag of the company concerned. The *Channel Packet*, the first of the series of new S.R. locomotives is at work on heavy freight trains on West of England main lines.

Accident to G.W.R. Express.—At about 3 a.m. on July 2, the 6.20 p.m. passenger train from Plymouth, just after re-starting at the Dolphin signal box, near Slough, in order to cross to the up relief line, collided with the engine of the 1.30 a.m. goods, Old Oak to Seven Tunnel Junction, drawn, we understand, by an L.M.S.R. engine on loan to the G.W.R. and therefore not fitted with A.T.C., and which had presumably failed to stop at the down relief home signal, as indicated in the accompanying diagram. Considerable



damage was done, the first two vehicles of the passenger train being telescoped and a number of goods wagons demolished. The railway company issued the following statement: "The Great Western Railway Company regret to announce that a collision occurred early this morning between an up West of England passenger train and a down goods train resulting in ten casualties—five killed and five injured." The fatalities included a petty officer and two naval ratings; another petty officer and three ratings, together with the driver of the goods train formed those formally notified as injured. About 25 other persons received minor injuries or shock. The driver and fireman of the express had a remarkable escape. Most of the passengers were soldiers or sailors and they gave prompt help to the railway staff, the Civil Defence services and Home Guard in helping to extricate and attend to the injured. Passengers able to travel were sent on by motor-coach and a bus service was put on to Langley while the obstruction lasted. Prompt

work by the breakdown gang enabled the up main line to clear for trains soon after noon. The accident occurred not far from the scene of the one which took place on March 3, 1937, when a passenger train struck the wagons of a train which had run off at some loop catch points and had fouled its path; the passenger guard was fatally injured. The Ministry of Transport inquiry into the accident was opened by Major G. R. S. Wilson at Slough on July 9.

British and Irish Railway Stocks and Shares

Stocks	Highest 1940	Lowest 1940	Prices	
			July 3, 1941	Rise/ Fall
G.W.R.				
Cons. Ord. ...	52	22½	36	—
5% Con. Pref. ...	103½	58	100½	+
5% Red. Pref. (1950)	105½	88	103	—
4% Deb. ...	107½	90½	108½	—
4½% Deb. ...	108½	96½	113	—
4½% Deb. ...	114½	96	116½	—
5% Deb. ...	124	106	130	—
25% Deb. ...	66½	57	66	—
5% Red. Charge ...	117½	97	127½	—
5% Co. s. Guar. ...	117	90½	124	—
M.S.R.				
Ord. ...	24½	9	13½	—
4% Pref. (1923)	60	21½	41	—
4% Pref. ...	70½	35	58½	—
5% Red. Pref. (1955)	94	60	84	—
4% Deb. ...	101½	81	101½	+
5% Red. Deb. (1952)	109½	102	108	—
4% Guar. ...	93½	65	93½	+
L.N.E.R.				
5% Pref. Ord. ...	8½	1½	2½	—
Def. Ord. ...	4½	1½	1½	—
4% First Pref. ...	60	20	41	—
4% Second Pref. ...	22½	6½	15½	—
5% Red. Pref. (1955)	80	34½	62½	—
4% First Guar. ...	86½	56	85½	+
4% Second Guar. ...	77½	37	70½	—
3% Deb. ...	73½	54½	75½	+
4% Deb. ...	97½	74	100½	—
4% Deb. (1947)	107	96½	104	—
4½% Sinking Fund	104	98	102½	—
Red. Deb. ...				
SOUTHERN				
Pref. Ord. ...	79	34	53½	—
Def. Ord. ...	22½	7	11½	—
5% Pref. ...	104½	58½	96½	+
5% Red. Pref. (1964)	105	85	100½	—
5% Guar. Pref. ...	116½	90	124	—
5% Red. Guar. Pref. (1957)	114½	94	113½	—
4% Deb. ...	106½	84½	105½	—
5% Deb. ...	122½	100	128½	—
4% Red. Deb. (1962-67)	106	96½	106	—
4% Red. Deb. (1970-80)	106½	93	106	—
FORTH BRIDGE				
4% Deb. ...	95½	87	92½	—
4% Guar. ...	93½	81½	92½	+
L.P.T.B.				
4½% "A" ...	116	103	114½	—
5% "A" ...	121½	107	123½	—
4½% "T.F.A." ...	105½	101	101½	—
5% "B" ...	116	102	109	—
"C" ...	65½	24	37	+
MERSEY				
Ord. ...	26	18½	20½	—
4% Perp. Deb. ...	92½	86½	92½	—
3% Perp. Deb. ...	68	63	67½	—
3% Perp. Pref. ...	57	50½	53½	—
IRELAND				
BELFAST & C.D.				
Ord. ...	4	3	4	—
G. NORTHERN				
Ord. ...	4½	1½	6½	—
G. SOUTHERN				
Ord. ...	12½	4	8½	—
Pref. ...	15½	6	9½	—
Guar. ...	36	15	25½	—
Deb. ...	55½	40	51½	—

**The Costa Rica Railway Company,
Limited**

THE Costa Rica Railway Company Limited announces that Agreements have been signed whereby that Company has acquired the whole of the Share Capital of the Northern Railway Company (of Costa Rica) as from 1st instant, from which date the railway lines of both Companies will be operated as one system.

T. C. B. WILLIAMS,
Secretary

4th July, 1941.

OFFICIAL NOTICES

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Questions in Parliament

Western Isles Steamer Service

Mr. Malcolm MacMillan (Western Isles—Lab.), on June 25, asked the Secretary to the Treasury if he would state the total amount paid to the MacBrayne Company in respect of the Western Isles steamer service each year since renewal of the contract.

Colonel Llewellyn (Parliamentary Secretary to the Ministry of Shipping): The subsidy of £60,000 per annum payable to this company under the contract of December 31, 1938, was not related to particular services but was in respect of the general services scheduled to the contract as a whole, and it is therefore not possible to state how much has been paid in successive years in respect of the Western Isles Steamer Service, or to give the amounts for different purposes separately. The outbreak of war led to very considerable increases in the costs of running and to decreases in receipts with the result that it became necessary to introduce new arrangements which will be expressed in annual contracts. The payments made in respect of the years 1939 and 1940 were £70,738 and £169,000 respectively.

M.O.I. Staff

Mr. Duff Cooper (Minister of Information), on June 25, informed Sir Percy Hurd (Devizes—C.) that the Regional Officers of the Ministry of Information numbered 13 and the local information committees 411. The costs to the Ministry for the year ending March 31 last were £7,457 and £3,641 respectively. The total annual cost of the Wartime Social Survey for the year ending March 31, 1941, was £10,273, including both headquarters and regional activities.

London Passenger Transport Board

Mr. J. Parker (Romford—Lab.), on June 25, asked the Parliamentary Secretary to the Ministry of War Transport when the vacancy on the London Passenger Transport Board, caused by the expiry of the appointment of Mr. Frank Pick, was to be filled.

Colonel J. J. Llewellyn said he could not say at present when an appointment would be made by the Appointing Trustees.

Trade Vehicles and Free Lifts

Sir Smedley Crooke (Deritend—C.), on June 25, asked the Parliamentary

Secretary to the Ministry of War Transport if he had now come to any conclusion with respect to revision of the regulations, which would enable drivers of motorcars carrying trade plates to give lifts to serving men in uniform.

Colonel J. J. Llewellyn, in a written reply, stated: A regulation was made on June 16 to the effect that for the duration of the war it will not be an infringement of the regulations if a casual free lift is given to members of H.M. Forces in uniform in a vehicle being otherwise lawfully used under a limited trade licence.

Motor Vehicles Maintenance

Mr. W. Craven-Ellis (Southampton—Nat.), on June 25, asked the Parliamentary Secretary to the Ministry of War Transport if, in view of the statement of the Director-General of the Ministry of War Transport, to the effect that the provision of repairs to motor vehicles would be a matter for his department and the Ministry of Supply and that that organisation was advised before the advisory committee on motor transport made its report, what was the purpose of setting up the committee; were the details of this organisation brought to the notice of the advisory committee; and what was its report.

Colonel J. J. Llewellyn, in a written reply, stated: I cannot trace any such statement. The Motor Vehicle Maintenance Advisory Committee was set up by the Minister of Supply and the late Minister of Transport jointly to advise them on the various questions relating to the maintenance of civilian road transport vehicles and the repair of service vehicles in civilian establishments. Full information was placed before the committee whose report has been received. The committee's recommendations are accepted and in large part have already been implemented or are in course of being so.

Cheap Fares for Evacuees' Parents

Mr. George Strauss (Norwich—C.), on June 26, asked the Parliamentary Secretary to the Ministry of War Transport whether he would make arrangements whereby London parents whose children had been evacuated to a considerable distance, such as Cornwall, should be able to obtain at least once every six months a cheap railway pass.

Colonel J. J. Llewellyn: Arrangements already exist under which parents whose children are evacuated from London or other evacuating areas can obtain railway tickets once a month at special cheap fares to visit them. Arrangements are now being made that such tickets available for one period of eight days will be issuable to parents taking their summer holiday with their children provided that they have secured accommodation in the reception area.

Parliamentary Notes

L.M.S.R. Superannuation Scheme

A report was presented to the House of Commons on June 26 by the Secretary of State for Scotland, the Chairman of Committees of the House of Lords, and the Chairman of Ways & Means in the House of Commons under Sub-section 4 of Section 1 of the Private Legislation Procedure (Scotland) Act, 1936, that they had taken into consideration a representation which had been made to the Secretary of State by the London Midland & Scottish Railway Company that it desired to obtain Parliamentary powers to amend its Superannuation Scheme, as specified in a schedule to the report, to be operated in Scotland and elsewhere, and that it was expedient that such powers should be conferred by one enactment by reason of the fact that in relation to such matters it was necessary to provide for the uniform regulation of the affairs of the company whose undertaking was operative in England, Scotland and Northern Ireland, and had decided that the said powers would more properly be obtained by the promotion of a Private Bill than by the promotion of a Private Bill and of a Provisional Order under the Private Legislation Procedure (Scotland) Act, 1936.

The report was ordered to lie upon the table.

Progress of Railway Bills

The London Midland & Scottish Railway Bill was reported, with amendments, to the House of Lords on June 25.

The Railway Clearing System Superannuation Fund Corporation Bill was read a third time, with the amendments, and passed in the House of Lords on June 25.

Railway Stock Market

Most sections of the Stock Exchange displayed a firm undertone this week, although gains in security values were not fully held. At the time of writing the general market trend has been governed mainly by absence of sustained improvement in the volume of business, and by a pause to the upward movement in British Funds, which, however, was not unexpected, bearing in mind the extent of the rise shown in recent weeks. The prevailing tendency is to await the next developments in the war and financial affairs. In connection with the latter it is being suggested that proposals to guard against inflation may be impending, including a scheme to obviate large wage and cost of living increases during the war. Present indications suggest that the weight of money available for investment will show expansion, and that, granted the war news is not unfavourable, leading securities of the fixed interest-bearing type may, therefore, move higher under the lead of British Government stocks. Contrary to recent experience, home railway junior stocks have been subject to profit-taking, and showed various small declines on balance, the disposition being to await the forthcoming dividend statements. On the other hand, moderate gains were recorded in the majority of the price charges, which remained firmly held, and were inclined to

attract increased demand, because they show yields which compare very favourably with those obtainable on other groups of stocks carrying high-class investment merits. It is recognised that, taking more than a very short-term view, the junior stocks may offer good speculative possibilities as to appreciation in value, assuming the railways receive equitable treatment in the matter of revision of the financial agreement. Nevertheless, the tendency now is to take the more cautious attitude, mentioned in these notes, that until an official pronouncement is made, it may, perhaps, be prudent to assume that dividends may not exceed the rates that could be paid on the basis of the guaranteed minimum revenue.

Following their recent further advance to 37, Great Western ordinary stock has moved back to 36½ at the time of writing. On the other hand, Great Western preference stock was a point higher at 101, although the debentures moved back slightly to 108. Whereas L.M.S.R. 4 per cent. debentures were better at 101½, and the guaranteed stock showed a small improvement to 94, the ordinary stock reacted from 13½ to 13½, but later rose to 14. The senior preference eased from 59 to 58½, and the 1923 preference from 42 to 41½. Among L.N.E.R. issues the 3 per cent. and 4 per cent. debentures were fractionally better at 75½ and par respectively, as was the first guaranteed at 85½.

and the second guaranteed at 74½. On the other hand, L.N.E.R. first preference was lower at 4½, compared with 42; the second preference, after rallying to 16, moved back to 15½, but was, however, little changed on balance. Contrary to the tendency in prior charges, Southern 4 per cent. debentures were fractionally lower at 105½. This company's preference stock improved slightly to 96½, which, however, is still several points below the equivalent stock of the Great Western. At 54, Southern preferred ordinary was half-a-point down on balance, but the deferred was unchanged on the week at 12½. Despite slight fluctuations, London Transport "C" at 37 was also unchanged on balance; in accordance with the trend in prior charges, moderately higher prices ruled for the "A" stocks.

Small gains were recorded in Argentine railway securities, sentiment in regard to which was assisted by the assumption that, taking the long view, the war is likely to result in expansion in demand for Argentine products. Moreover, the prevailing belief is that the disappointing results which must be expected of the financial year ended last month, are probably more than discounted in current market prices. Minor fluctuations were shown in Canadian Pacific Railway issues. Elsewhere various gains were recorded in quotations for Indian railway stocks.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1940-41	Week Ending	Traffic for Week			No. of Weeks	Aggregate Traffics to Date			Shares or Stock	Prices					
			Total this year	Inc. or Dec. compared with 1940			This Year	Last Year	Increase or Decrease		Highest 1940	Lowest 1940	July 3, 1941	Yield % (See Note)		
South & Central America																
Antofagasta (Chili) & Bolivia	834	29.6.41	£ 24,510	+ 5,970	26	£ 468,540	£ 488,440	— 19,900	Ord. Stk.	11½	3½	4½	Nil			
Argentine North Eastern	753	28.6.41	ps. 183,000	+ ps. 6,800	29	ps. 7,603,100	ps. 8,136,800	— ps. 533,500	ps. 6 p.c. Deb. Bonds	34	5	2	Nil			
Bolivar	174	May 1941	4,200	— 210	22	19,132	20,650	— 1,518	Ord. Stk.	6½	8	6½	Nil			
Brazil	...	...							6 p.c. Deb. Bonds	4½	1	5	Nil		
Buenos Ayres & Pacific	2,801	21.6.41	ps. 1,610,000	+ ps. 575,000	51	ps. 73,648,000	ps. 70,099,000	+ ps. 3,549,000	Ord. Stk.	10½	3	4½	Nil			
Buenos Ayres Central	190	18.1.41	ps. 70,000	+ ps. 20,000	29	ps. 2,477,400	ps. 2,994,900	— ps. 517,500	Ord. Stk.	8½	2	3½	Nil			
Buenos Ayres Great Southern	5,082	21.6.41	ps. 2,063,000	+ ps. 357,000	51	ps. 113,322,000	ps. 118,991,000	+ ps. 4,769,000	Ord. Stk.	10½	8½	9½	Nil			
Buenos Ayres Western	1,930	21.6.41	ps. 81,000	+ ps. 140,000	51	ps. 40,508,000	ps. 39,907,000	+ ps. 601,000	Ord. Stk.	4½	1	3½	Nil			
Central Argentine	3,700	28.6.41	ps. 1,923,600	+ ps. 503,800	52	ps. 85,989,500	ps. 90,500,800	+ ps. 4,511,300	Ord. Stk.	8½	2	3½	Nil			
Do.									Ord. Stk.	4	—	—	Nil			
Cent. Uruguay of M. Vides	972	21.6.41	28,008	+ 4,395	51	1,206,170	1,118,121	+ 88,049	Ord. Stk.	3½	1½	1½	Nil			
Costa Rica	...	188	April 1941	15,450	— 2,390	43	152,170	176,057	— 23,887	Ord. Stk.	23½	14	15½	12½		
Dorado	...	70	May 1941	12,900	— 100	22	62,100	59,100	+ 3,000	I Mt. Db	99	97½	98	6½		
Entre Rios	...	808	28.6.41	ps. 282,900	+ ps. 64,100	52	ps. 11,180,500	ps. 12,411,100	— ps. 1,230,600	Ord. Stk.	4	1½	1½	Nil		
Great Western of Brazil	1,016	28.6.41	7,800	— 26	24,700	27,700	— 36,000	Ord. Stk.	4½	—	—	—	Nil			
International of Cl. Amer.	794	Apl. 1941	ps. 523,559	+ ps. 57,739	17	\$1,967,942	\$2,343,432	+ \$375,490	Ord. Stk.	9½	—	—	—	Nil		
Interceanic of Mexico	...								Ord. Stk.	9½	9½	—	—	Nil		
La Guaira & Caracas	223	June 1941	5,075	+ 315	26	35,220	39,435	— 4,215	Ord. Stk.	6	4	—	—	Nil		
Leopoldina	1,918	21.6.41	26,138	+ 4,570	25	589,744	535,926	+ 52,818	Ord. Stk.	2½	—	—	—	Nil		
Mexican	483	21.6.41	ps. 302,300	+ ps. 16,600	25	ps. 7,647,500	ps. 7,496,000	+ ps. 151,500	Ord. Stk.	2½	—	—	—	Nil		
Midland of Uruguay	319	April 1941	11,861	+ 851	43	119,846	107,251	+ 12,595	Ord. Stk.	—	—	—	—	Nil		
Nitrate	...	386	30.6.41	6,702	— 845	26	53,710	88,362	+ 34,652	Ord. Stk.	2½	1½	2½	5½		
Paraguay Central	274	28.6.41	\$3,121,000	+ \$1,873,000	52	\$172,559,000	\$168,968,000	+ \$3,591,000	Ord. Stk.	41	36	30½	19½			
Peruvian Corporation	1,059	May 1941	63,038	+ 6,669	48	709,504	750,190	+ 40,686	Ord. Stk.	4	2	—	—	Nil		
Salvador	100	26.4.41	ps. 16,665	+ 5,606	43	ps. 683,768	ps. 677,205	+ \$193,437	Ord. Stk.	50	23	25	8			
Sao Paulo	153	22.6.41	40,875	+ 1,965	25	923,905	906,848	+ 17,057	Ord. Stk.	1,785	Ord. Stk.	15½	—	—	Nil	
Tatia	160	May 1941	3,095	+ 555	48	30,545	28,760	+ 1,785	Ord. Stk.	—	—	—	—	Nil		
United of Havana	1,346	28.6.41	24,334	+ 2,372	52	1,258,115	1,267,981	+ 9,866	Ord. Stk.	—	—	—	—	Nil		
Uruguay Northern	73	April 1941	1,009	+ 239	43	11,317	11,242	+ 75	Ord. Stk.	—	—	—	—	Nil		
Canada	23,633	28.6.41	1,201,715	+ 189,005	25	26,774,475	21,426,282	+ 5,348,193	Perp. Dbs.	86	68	92	4½			
Canadian National	—								4 p.c. Gr.	105½	95½	101½	3½			
Canadian Northern	—								Ord. Stk.	9½	4½	8½	—			
Grand Trunk	—								Ord. Stk.	283	234	300	5½			
Canadian Pacific	17,153	21.6.41	840,800	+ 154,800	25	18,786,200	14,312,200	+ 4,655,200	Ord. Stk.	—	—	—	—	Nil		
India	Assam Bengal	1,329	—	+ 5,497	—	1,935	3	—	Ord. Stk.	99½	71	100	3			
Barsi Light	202	20.4.41	270,525	+ 37,232	9	544,425	595,649	+ 51,224	Ord. Stk.	283	234	300	5½			
Bengal & North Western	2,086	31.5.41	14,625	+ 508	46	78,405	66,243	+ 12,162	Ord. Stk.	—	—	—	—	Nil		
Bengal-Dooars & Extension	161	Sept. 1940	266,175	+ 11,055	52	8,989,306	8,266,447	+ 722,859	Ord. Stk.	96	83½	100½	4			
Bengal-Nagpur	3,269	31.3.41	300,450	+ 31,575	12	2,532,000	2,436,300	+ 95,700	Ord. Stk.	108	99	108	5½			
Bombay, Baroda & C. India	2,986	20.6.41	183,900	+ 1,510	3	390,375	375,106	+ 15,269	Ord. Stk.	104	97½	104	7½			
Madras & Southern Mahratta	2,939	20.4.41	66,150	+ 3,960	9	128,925	139,568	+ 10,648	Ord. Stk.	284	238	293	5½			
Rohilkund & Kumaon	571	31.5.41	141,529	+ 23,547	2	141,529	117,981	+ 23,547	Ord. Stk.	93½	83	97½	4½			
South Indian	2,500	10.4.41	—	—	—	—	—	—	Ord. Stk.	—	—	—	—	Nil		
Various	Beira	204	April 1941	65,450	+ 6,617	2	495,141	5,255	+ 1,362	Prf. Sh.	7/10½	8	—	—	Nil	
Egyptian Delta	610	10.4.41	—	—	—	—	—	—	B. Deb.	53	44½	45½	7½			
Kenya & Uganda	1,625	—	—	—	—	—	—	—	Inc. Deb.	88	80	87½	6½			
Manila	—	—	—	—	—	—	—	—	Ord. Stk.	—	—	—	—	Nil		
Midland of W. Australia	277	Feb. 1941	13,851	+ 1,637	35	119,604	102,871	+ 16,733	Ord. Stk.	—	—	—	—	Nil		
Nigerian	1,900	31.3.41	100,291	+ 53,330	52	2,494,207	2,108,686	+ 385,521	Ord. Stk.	—	—	—	—	Nil		
Rhodesia	2,442	April 1941	429,209	+ 31	3,283,108	—	—	—	Ord. Stk.	—	—	—	—	Nil		
South Africa	13,287	17.5.41	768,976	+ 127,096	7	4,906,695	4,405,957	+ 500,738	Ord. Stk.	—	—	—	—	Nil		
Victoria	4,774	Feb. 1941	870,883	+ 1,583	35	—	—	—	Ord. Stk.	—	—	—	—	Nil		

Note. Yields are based on the approximate current prices and are within a fraction of 1/16.

* Chairle Fair.

† Receipts are calculated @ 1s. 6d. to the rupee